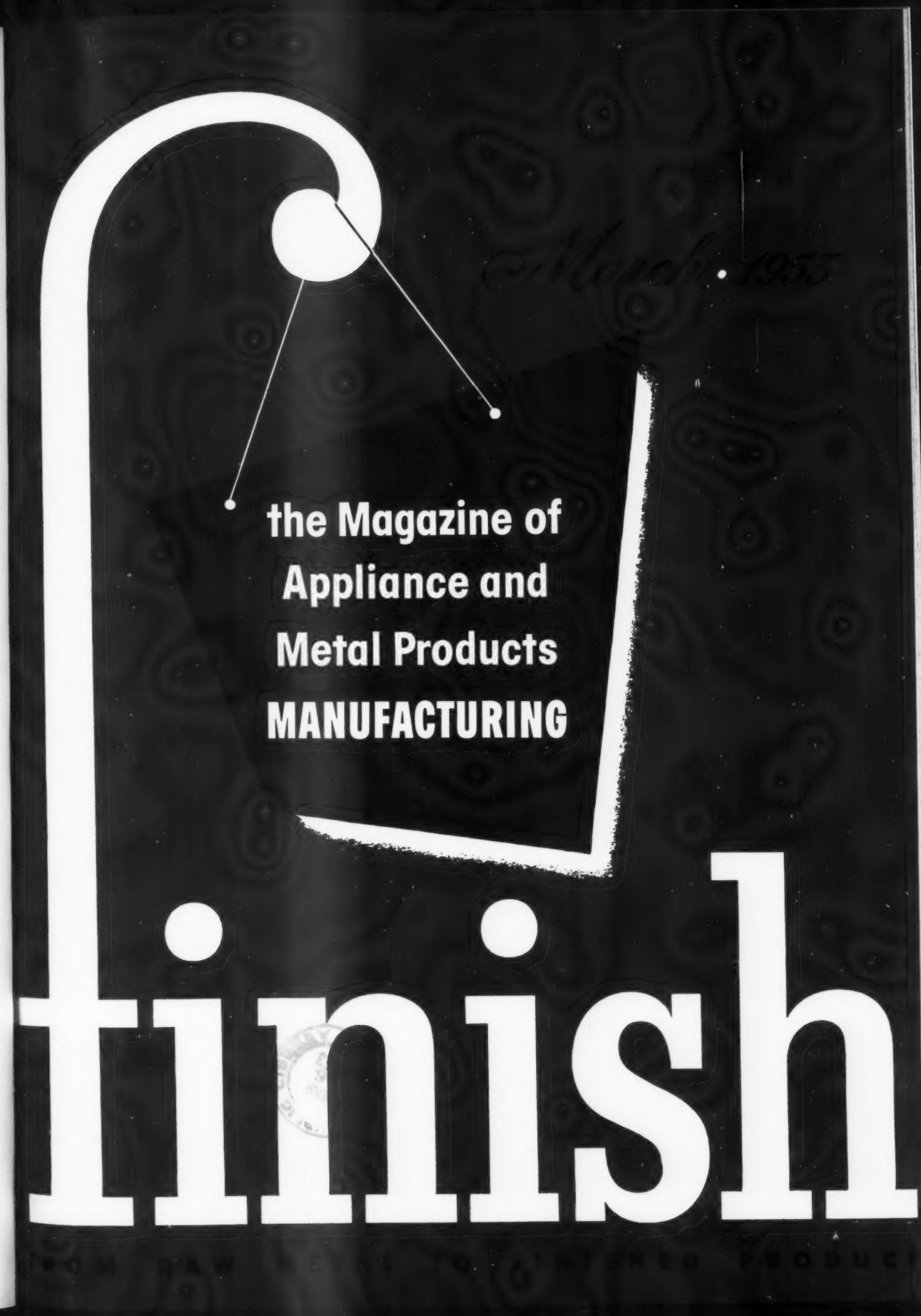
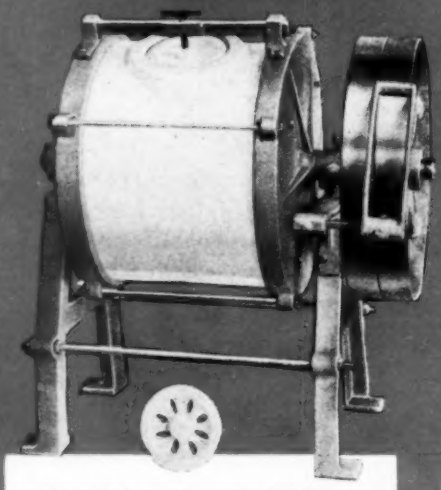

March 1955
the Magazine of
Appliance and
Metal Products
MANUFACTURING
finish

For better grinding service use "Ceramic" PORCELAIN JAR MILLS

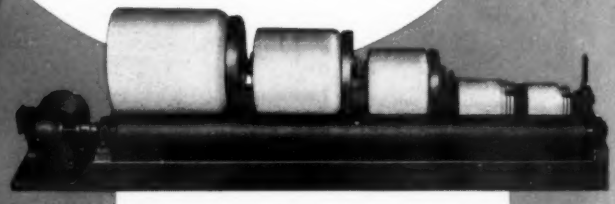


The Mill shown above, No. 11B, has a capacity of 100 pounds dry material. Similar in design, the No. 22A and No. 33A have dry material capacities of 50 and 25 pounds respectively.

Whatever your requirements "Ceramic" has a mill to meet them. All jars are made in one piece of the finest vitrified china available. Production tests have shown increased grinding service in comparison with other porcelains tested. Replacement jars are available from stock. Three popular mills are illustrated.

Write for the "Ceramic" Jar Mill Bulletin giving details and specifications of other mills and jars.

Mill No. 55M, shown above, handles two jars at a time, each with a capacity of 10 pounds dry material. The No. 44 is similar in type, with two jars of from 2 to 3 pounds capacity.



Roller Type Jar Mill No. R-7, above, accommodates four one-gallon jars, or any assortment of gallon and smaller jars. Other Roller Type Mills can be furnished, in larger and smaller capacities.

WENNING CERAMIC COLORS

COLORS
CHEMICALS
SUPPLIES

CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.

Porcelain enamel is ideal for MODERN DESIGNS

This is one of the big advantages of Porcelain Enamel on Armco Enameling Iron:

You can adapt this modern finish to practically any design for the products you make. It may not even be necessary to change your present designs to assure uniformly good results—in your shop as well as when your products are in service.

Four important factors should be kept in mind when designing parts or products for porcelain enameling: (1) correct radii of curvature on all parts; (2) sufficient internal support at all points; (3) metal of sufficient thickness to resist warping or twisting during firing; and (4) the metal should be made specifically for porcelain enameling.

OFFERS SALES AIDS

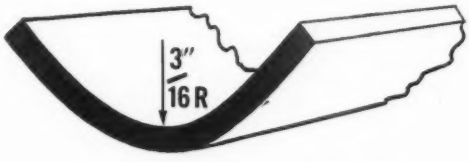
Besides its adaptability to modern design, Porcelain Enamel stands out as a sales-aid in comparison with other finishes.

It is a "*lifetime finish*" that is not affected by time or corrosion. It resists acids, and is not harmed by hot skillets, forgotten cigarettes, or even hot electric irons. What's more, stains and dirt come off easily when the surface is washed with soap and water.

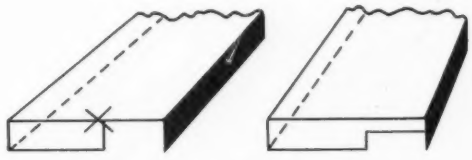
Porcelain Enameled products can be supplied in any color and in any variation of shades. Colors never "fade out" or lose their original luster.

UNIFORM QUALITIES

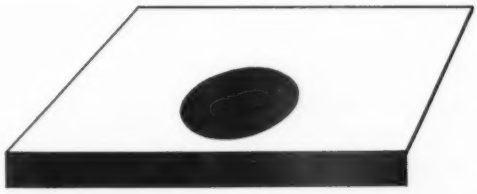
Of course, the metal beneath the Porcelain Enameled surface must have excellent bonding qualities, flatness, and uniform fabricating characteristics. That is why more manufacturers have used more Armco Enameling Iron over a longer period than any other enameling base. That is why too it has become known as the "World's Standard Enameling Iron."



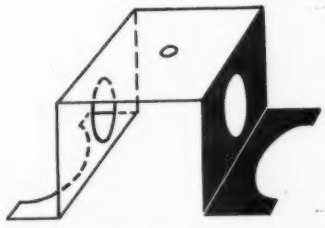
The radii of curvature of metal parts to be porcelain enameled should always exceed 3/16".



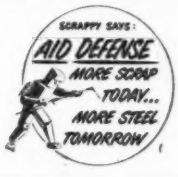
Lack of support at Point X could result in flexing and chipping. Maintaining part of flange (sketch at right) corrects this.



Flanging of edges near large holes gives needed support, which prevents deforming of metal during firing.



Support lugs or clips should be of lighter gage and cut away at junction points, to reduce area of double-thick metal to be heated when coatings are fired.



ARMCO STEEL CORPORATION

3712 CURTIS STREET, MIDDLETOWN, OHIO • PLANTS AND SALES OFFICES FROM COAST TO COAST • EXPORT: THE ARMCO INTERNATIONAL CORPORATION

ARMCO

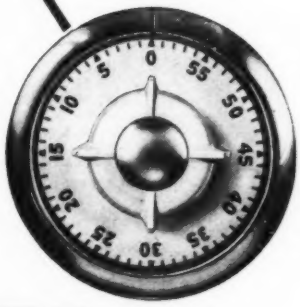
INTERCHANGEABLE LUX TIMERS

for greater flexibility • for lower inventory

5420

5400

2485



2420

There's a MINUTE MINDER to fit any model range!

[redacted] Combination Electric Clock and 4-hour bell-chime Minute Minder. Completely new escutcheon plate appearance with highly polished rectangular chrome or brass bezel. Standard dials in blue, white and gold, or red, white and gold.

[redacted] Conventional round Electric Clock and Timer with bell-chime signal, 4-hour setting. Distinctive metal dial in blue, white and gold, or red, white and gold.

[redacted] Precision Minute Minder with split-minute timing. Attractive 3-dimension plastic setting knob. Available in any commercial color combination.

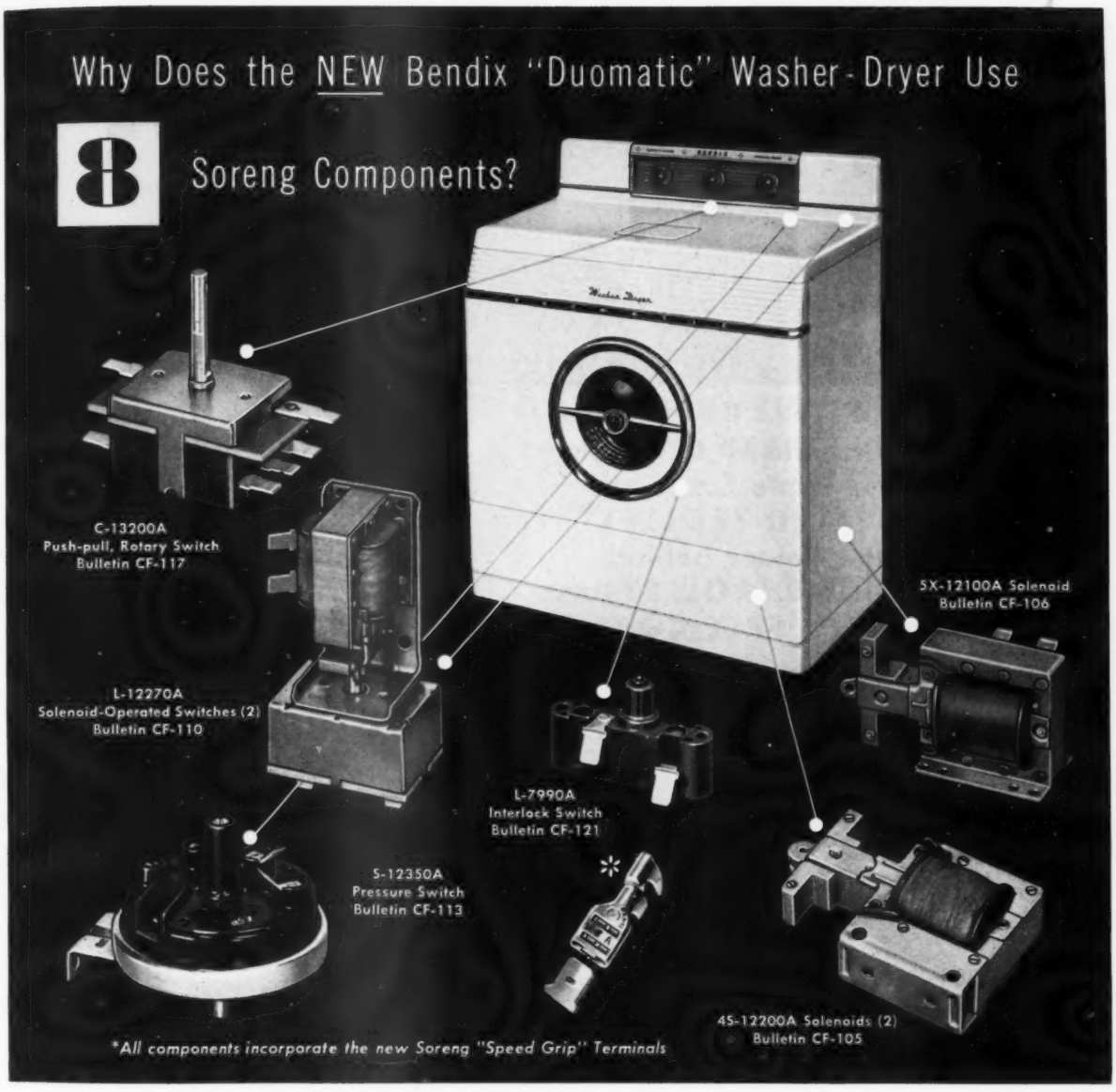
[redacted] The simple "Twist-Set-and-Forget" Minute Minder—ideal for low-end ranges. Two types of plastic setting knobs; numerals any commercial color desired.

LUX CLOCKS

LUX CLOCK MANUFACTURING CO., INC.
WATERBURY 20, CONNECTICUT

World's largest maker of precision timing movements for industry

contents in front



Obviously this ingenious Washer-Dryer requires many custom-designed components. Perhaps you say, "When you talk about custom-built parts, you're talking higher costs." Not if you talk to Soreng!

That is why Bendix, and most other outstanding appliance manufacturers, employ Soreng products. They know from first hand experience that Soreng can supply custom quality electrical and electronic components at "stock item" prices.

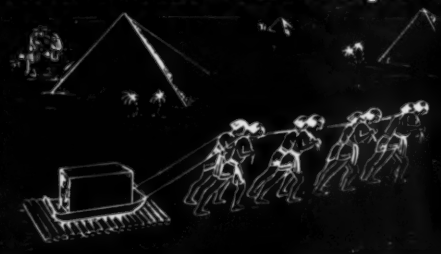
Write for our "Data Folder" giving technical details on a broad range of products. Modifications of the products illustrated can be designed to meet your specific requirements. Please feel free to request information or estimates.

another example of
SORENG CUSTOM QUALITY AT LOWER PRODUCTION COST

SORENG
PRODUCTS CORPORATION
9559 Soreng Ave., Schiller Park, Ill. (Chicago Suburb)
Plants: Schiller Park, Ill. • Fremont, Ohio • Spring Valley, Ill.

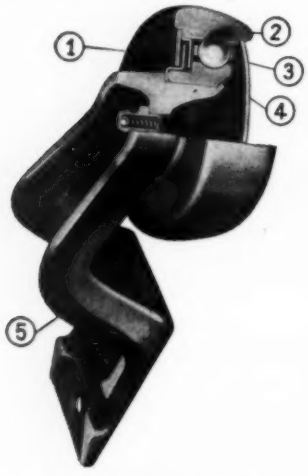
Ancient Egyptian Engineers Developed the FIRST Conveyors

Reputedly, the Pharaohs' great engineers solved their problems for conveying huge stone blocks, used in construction of the Pyramids, by having thousands of slaves "trolley" these tremendous stones from the Nile over tallow-lubricated logs. Nowadays, materials handling is made more efficient, speedy and labor saving because —



JERVIS B. WEBB COMPANY
was the FIRST to develop the Triple Labyrinth SEALED TROLLEY the *Power* behind REGULAR TROLLEY and POWER AND FREE CONVEYORS

The Webb "Red Seal" Trolley has been an outstanding success since its introduction. The fundamental design included flangeless hardened steel wheels, improved tread contour, retainer type ball bearings and hardened and ground races. It showed its superiority in varied services, in hundreds of installations. The present "Red Seal" design offers many improvements (listed here) — placing it far out in front.



The 4" No. 3377 Swaged Trolley shown has no bolts, pins or nuts, and like all Webb Trolleys is arranged for pressure gun lubrication.

1. **TRIPLE LABYRINTH SEAL**
   Three walls of steel to keep the lubricant in and the dirt out.
2. **HARDENED STEEL WHEELS**
   Contoured to fit the flange of the I-beam on which they ride.
3. **LARGE ALLOY STEEL BALLS**
   Eight 15/32". Highest quality alloy steel balls operate in a deep groove retainer type bearing. Due to the lower friction with retainer type bearings, the life is longer.
4. **PRECISION GROUND RACES**
   Large diameter. Ground to precision specifications — less friction.
5. **STURDY DROP-FORGED BRACKET**
   The wheel is firmly swaged to the bracket, eliminating loose rivets or bolts, making the wheel and bracket an integral unit.

CONVEYOR ENGINEERS AND MANUFACTURERS

JERVIS B. WEBB COMPANY

8913 ALPINE AVE. DETROIT 4, MICH.

OFFICES IN PRINCIPAL CITIES

FACTORIES IN DETROIT . . . LOS ANGELES . . . HAMILTON, ONT.

MEETINGS

ASTM SPRING MEETING

American Society for Testing Materials, spring meeting, Detroit, March 2-6.

NEMA MID-WINTER MEETING

National Electrical Manufacturers Association, mid-winter convention, Edgewater Beach Hotel, Chicago, March 9-12.

ENAMELERS CLUBS

Midwest Enamelers Club, LaSalle Hotel, Chicago, March 14.

Pacific Coast Enamelers Club, Los Angeles, March 20.

TOOL ENGINEERS

American Society of Tool Engineers, annual meeting, Statler Hotel, Detroit, March 18-20.

STAMPERS SPRING SYMPOSIUM

Pressed Metal Institute, spring technical symposium, Hotel Carter, Cleveland, Ohio, March 25-27.

FINISHES SYMPOSIUM

Case Institute of Technology, industrial finishes symposium, Cleveland, Ohio, March 30 through April 1.

EEI SALES CONFERENCE

Edison Electric Institute, annual sales conference, Edgewater Beach Hotel, Chicago, March 30-April 2.

AMERICAN CERAMIC SOCIETY

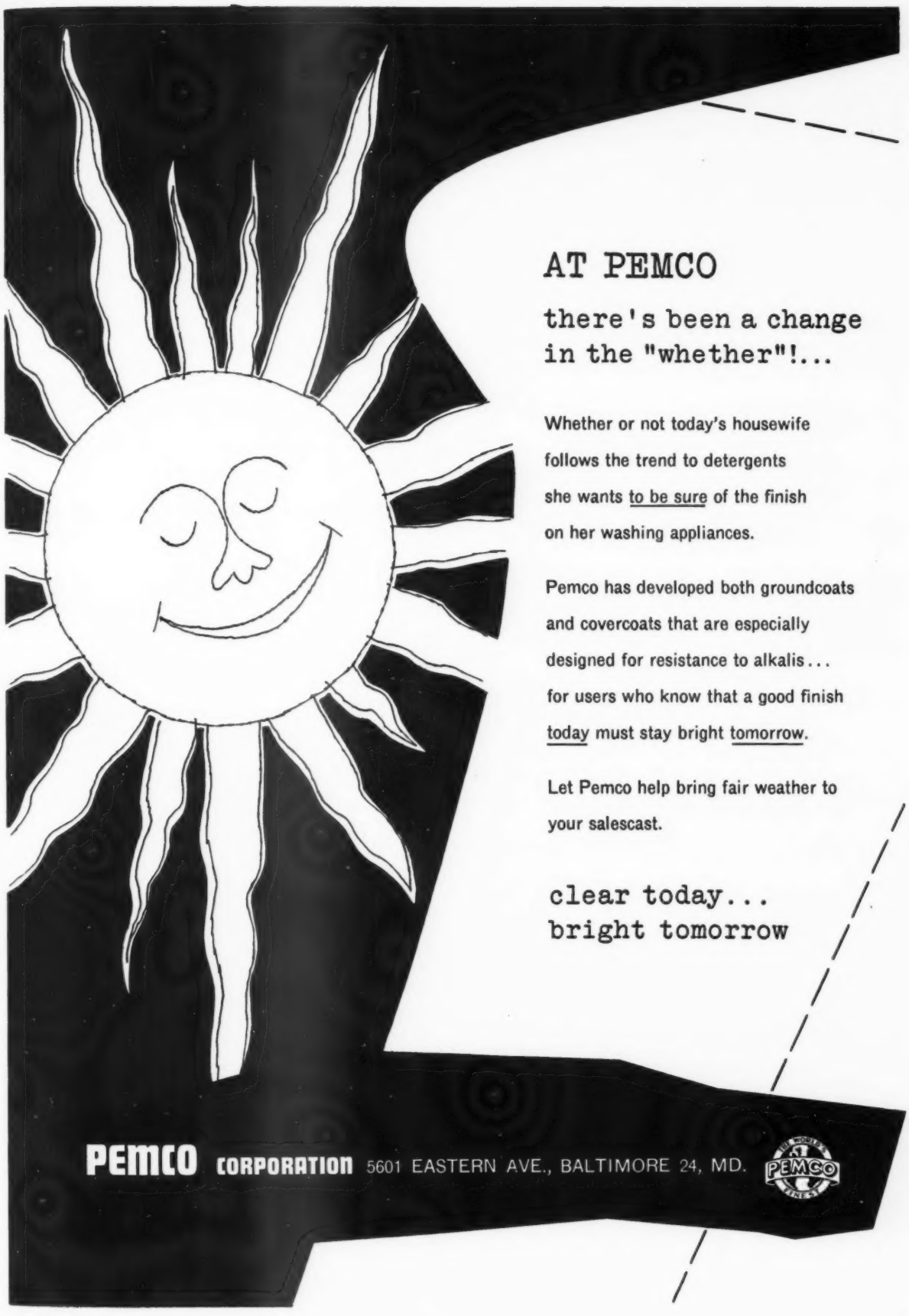
American Ceramic Society, 55th annual meeting, New York City, April 26-30.

LPGA CONVENTION

Liquefied Petroleum Gas Association, annual convention and trade show, Chicago, May 3-6.

GAMA ANNUAL MEETING

Gas Appliance Manufacturers Association, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., May 20-22.



AT PEMCO

there's been a change in the "whether"!...

Whether or not today's housewife follows the trend to detergents she wants to be sure of the finish on her washing appliances.

Pemco has developed both groundcoats and covercoats that are especially designed for resistance to alkalis... for users who know that a good finish today must stay bright tomorrow.

Let Pemco help bring fair weather to your salescast.

clear today... bright tomorrow

PEMCO CORPORATION 5601 EASTERN AVE., BALTIMORE 24, MD.

DeVilbiss originated low-pressure ceramic spraying

DeVilbiss low-pressure guns being used to spray porcelain enamel finish coat on automatic washer cabinets in a DeVilbiss dry-type ceramic booth.

DeVilbiss low-pressure spraying saves appliance manufacturer $50,000 a year!

That's right! $50,000 a year! That's how much a major appliance manufacturer saved the first year after changing from high-pressure guns to DeVilbiss low-pressure spray guns. Power costs were cut 1/3, enamel consumption reduced 33%. Finish was improved. There were fewer rejects.

DeVilbiss low-pressure spraying makes a much "wetter" coat possible. Film thickness is greater. Material can be applied more evenly. Low pressure also reduces overspray, cuts booth-cleaning time from once a shift to once a week, and reduces wear on fluid tips and needles. Because fewer passes are needed, operators have less fatigue, quality of work stays high.

Conversion to DeVilbiss low-pressure spraying is quick and low in cost. Your nearest DeVilbiss branch office or our factory will be glad to give you the information you need. Contact us today.

THE DEVILBISS COMPANY
Toledo, Ohio

Windsor, Ontario • London, England • Santa Clara, Calif.

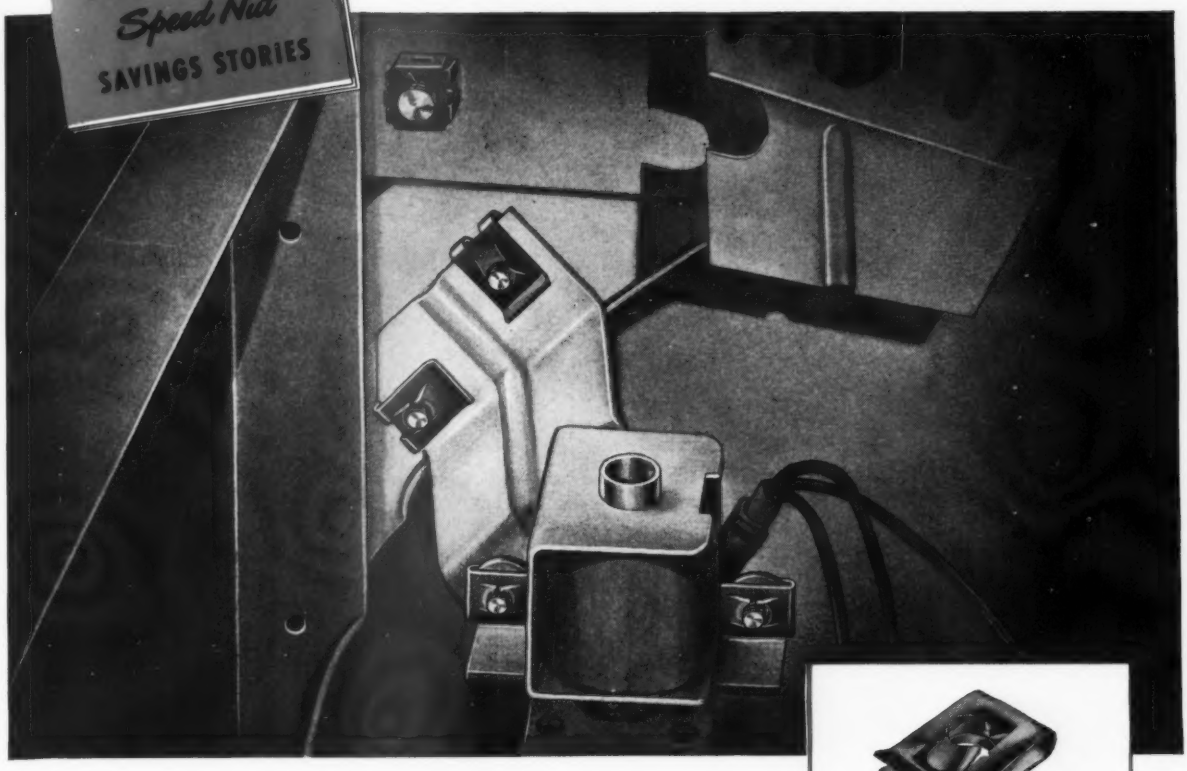
FOR BETTER SERVICE, BUY

DEVILBISS

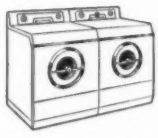
BRANCH OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT THE UNITED STATES, CANADA AND THE WORLD

FASTEST THING IN FASTENINGS®

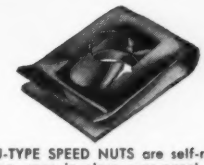
TINNERMAN *Speed Nut* SAVINGS STORIES



BENDIX Perfect Laundry Pair "Cleans Up" with SPEED NUT Savings!



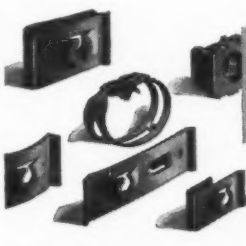
For years, Bendix engineers have relied on SPEED NUTS to cut assembly costs and step up production schedules. That is why SPEED NUT brand fasteners were specified on the new "Perfect Pair" automatic washer and dryer units. Here is a direct quotation from a recent Bendix report . . . ". . . because we design from the ground up with Tinnerman, we effect basic economies. These include lower production costs and greater efficiency that result in lower retail prices and reduced service costs for consumers. Thus, in our production, we consider Tinnerman products more basic than nuts and bolts." Chances are your Tinnerman representative can turn your assembly problems into production savings. See him soon for details on the Fastening Analysis Service available for your products!



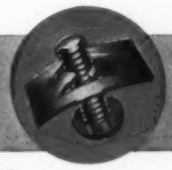
U-TYPE SPEED NUTS are self-retaining, snap in place over panel edges or center-panel locations; remain in bolt-receiving position for fast, easy assembly.

SPEED GRIP Nut Retainers snap in place by hand . . . no welding, clinching or staking. They reduce materials handling and are ideal for blind locations.

A copy of "SPEED NUT Savings Stories", an interesting booklet of typical Tinnerman savings to industry, is yours on request. Write: TINNERMAN PRODUCTS, INC., Box 6688, Dept. 12, Cleveland 1, Ohio. *In Canada:* Dominion Fasteners Ltd., Hamilton, Ontario, *In Great Britain:* Simmonds Aerocessories, Ltd., Treforest, Wales. *In France.* Aerocessoires Simmonds, S. A.—7 rue Henri Barbusse, Levallois (Seine).



TINNERMAN *Speed Nuts*



MORE THAN 8000 SHAPES AND SIZES

10-year foundation for customer-attracting finishes...

Beverage cooler manufactured by Mundean Mfg. Co., Columbus, Ohio, using Republic Electro Paintlok Sheets for the enamel-finished exterior and the natural-finish inner liner. Trim is Republic Enduro Stainless Steel.

Republic

ELECTRO PAINTLOK SHEETS

The makers of this beverage cooler estimate that its bright red finish still will be pulling in customers after 10 years of service, outdoors or in.

The body and inside liner of the cabinet are Republic Electro Paintlok . . . the zinc-coated steel sheet that is chemically treated to *take* paints, lacquers, and synthetic enamels *smoothly* . . . and *hold* them for years, even under hard service and severe exposure.

What's more . . . the tight zinc coat helps protect the steel and the enameled finish from creeping rust and corrosion even if the painted surface should be scratched.

When you receive Republic Electro Paintlok Sheets, they are ready to paint after a simple cleaning to remove shipping grime. Even after drawing to shape, these sheets require only degreasing before painting. The zinc coating clings tight, is not cracked or peeled by normal fabrication procedures.

Get all the facts on Republic Electro Paintlok Sheets for your fabricated steel products that need to look better longer. Ask for Booklet 525.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES, CLEVELAND 1, OHIO
Export Department:
Chrysler Building, New York 17, N. Y.

Republic
REPUBLIC STEEL
ELECTRO ZINC PLATED SHEETS
Electro Paintlok · Electro Zincbond

Other Republic Products include Carbon, Alloy and Stainless Steels—Sheets, Strip, Plates, Bars, Pipe, Tubing, Bolts and Nuts, Wire

THE finish spotlight

Especially developed to meet the hot water demands of the automatic clothes washer and dishwasher is Ruud's new Duo-Temp Laundrymaster which provides water of two different temperatures from a single tank. This revolutionary gas water heater provides 180° water for clothes washer and dishwasher, and 125° water for general home use.

can porcelain enamel help you sell more HOME FREEZERS?

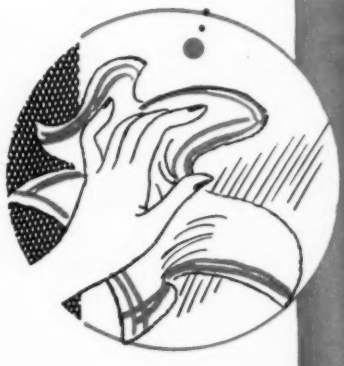
The universal acceptance of porcelain enamel in the American home may offer you new and unusual sales opportunities. Equally important, here's a *proved selling feature* that costs you relatively nothing.

Today's homemaker recognizes porcelain enamel as a *lifetime finish* . . . a gleaming, white, enduring surface that stays beautifully intact, throughout the *entire useful life* of the appliance it covers. She knows that a porcelain enameled surface is completely sanitary; alkali, acid and heat resistant; easy to clean; a permanent coat of protective armor for the kitchen helps she treasures. In short, she knows porcelain enamel as the one and only quality finish.

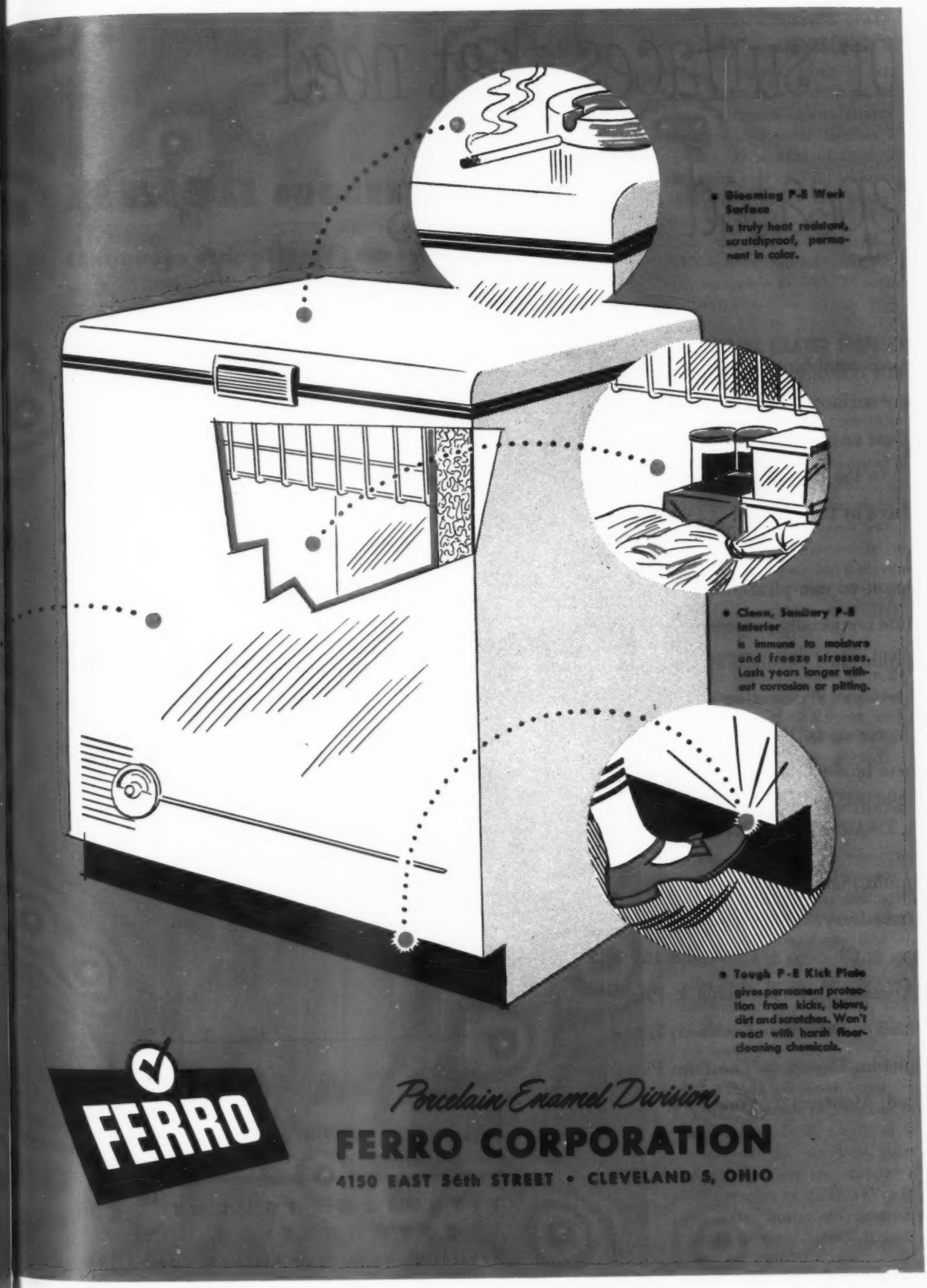
What today's homemaker doesn't know is that while other production materials and costs have climbed steadily, porcelain enamel, today, costs little, if any, more than it did twelve years ago. And you can use lighter gauge, lower cost steels because today's porcelain enamel coatings are thinner, lighter in weight, fired at lower temperatures. What's more, they're tougher, too . . . and how your dealer can demonstrate this on his sales floor!

You're going to see porcelain enamel on more and more appliances, used in more and more ways by industry. Why not stop now and consider how this economical *quality finish* can add sales appeal to your own products?

There's a Ferro representative waiting to show you how easily it can be done.



• **Sparkling P-E Outer Armor**
kept beautiful with the wipe of a cloth. Immune to stains, scratches, burns and normal wear.


• Gleaming P-E Work Surface
is truly heat resistant, scratchproof, permanent in color.
• Clean, Sanitary P-E Interior
is immune to moisture and freeze stresses. Lasts years longer without corrosion or pitting.
• Tough P-E Kick Plate
gives permanent protection from kicks, blows, dirt and scratches. Won't react with harsh floor-cleaning chemicals.
FERRO
Porcelain Enamel Division
FERRO CORPORATION
4150 EAST 56th STREET • CLEVELAND 5, OHIO

for surfaces that need repeated cleanings

Furious scrubbing—that's the treatment this grimy surface will get. Mother will scour his face until it shines again. And she'll do the same to the titania porcelain enameled surfaces in the kitchen.

TITANOX-TG non-pigmentary titanium dioxide is specially processed for these enamels. The controlled chemical and physical properties of TITANOX-TG speed production and lower costs. For the often desired delicate blue-white tints, TITANOX-TG-400 is constant and uniform in bluing effect.

Titanium Pigment Corporation,
111 Broadway, New York 6, N. Y.; Atlanta;
Boston 6; Chicago 3; Cleveland 15;
Los Angeles 22; Philadelphia 3; Pittsburgh 12;
Portland 9, Ore.; San Francisco 7.
In Canada: Canadian Titanium Pigments
Limited, Montreal 2; Toronto 1.

®TITANOX
brightest name in the finish

TITANIUM PIGMENT CORPORATION
Subsidiary of NATIONAL LEAD COMPANY

1596

finish SUGGESTION BOX

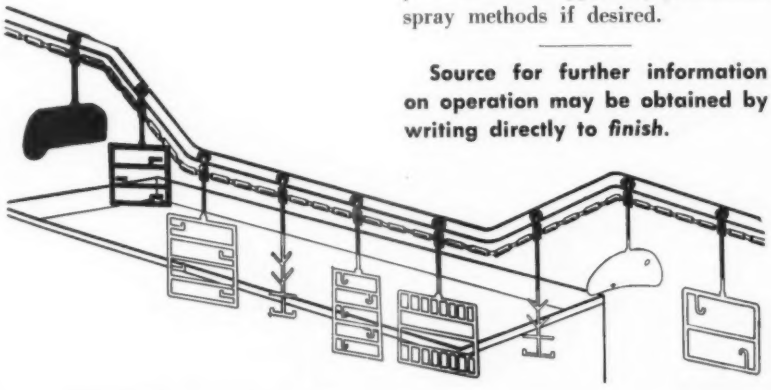
Continuous stripping of conveyor hangers and appliance parts

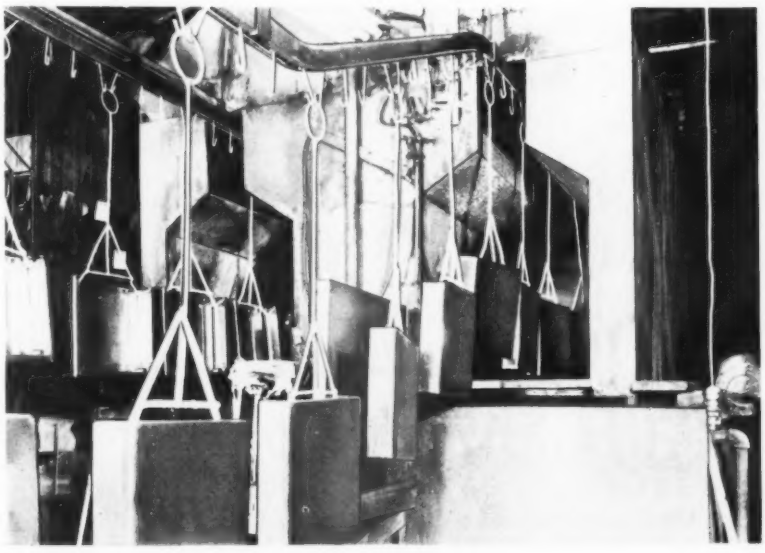
THE stripping of paint from conveyor hooks, hangers and other conveyor line handling equipment — as well as appliance and other metal product rejects, can now be done rapidly. New paint stripping chemicals make it possible to make the job a regular production conveyor line operation.

The procedure provides for running the conveyor hangers, etc. through a tank of the one-step stripper at a given point. Prior to reaching this stage, finished work pieces are removed, and at this point accumulated paint rejects can be placed on the line to be stripped along with the equipment. Tests indicate a savings up to 90 per cent in time.

The new high speed, one-step stripper can also be applied by production spray methods if desired.

Source for further information on operation may be obtained by writing directly to *finish*.





NEMA HOME FREEZER SALES SET RECORD IN '52

The 25 manufacturers of farm and home freezers reporting to the National Electrical Manufacturers Association sold more freezers during the first 11 months of 1952 than in the entire year of 1951, assuring that 1952 would be the best freezer sales year on record.

At the end of November, the NEMA firms had sold 753,785 freezers, compared to 738,328 sold in all of 1951.

GAS WATER HEATER SHIPMENTS EXCEED 1,900,000 FOR '52

Heavy shipments of gas water heaters by manufacturers during the latter months of 1952 all but wiped out a deficit that had accrued during the first part of the year, according to Edward R. Martin, director of marketing and statistics, Gas Appliance Manufacturers Association.

Total shipments for the year were 1,922,200 units, only .8 of one per cent below the 1,937,700 units shipped in 1951.

Shipments of 1,006,800 units during the last six months were 29.6 per cent over the last six months of 1951. During the first half-year, shipments totaled 915,400 units, 21.1 per cent under the first half of 1951.

GAMA FORECASTS CONTINUED UPSURGE IN APPLIANCE SALES

The strong upsurge which marked the production and shipments of domestic gas appliances during the last six month of 1952 promises to continue for at least the first half of 1953, with most appliances reaching sales peaks second only to the record volume achieved in 1950, according to the Gas Appliance Manufacturers Association.

Results of a recent survey shows that GAMA members expect to ship 767,000 gas-operated central heating units during 1953, a gain of 4.1 per cent over the previous year. Gas range shipments are expected to rise 5.8 per cent to 2,320,000 units, and gas water heater shipments are expected to total 2,000,000 units, a 4 per cent gain.

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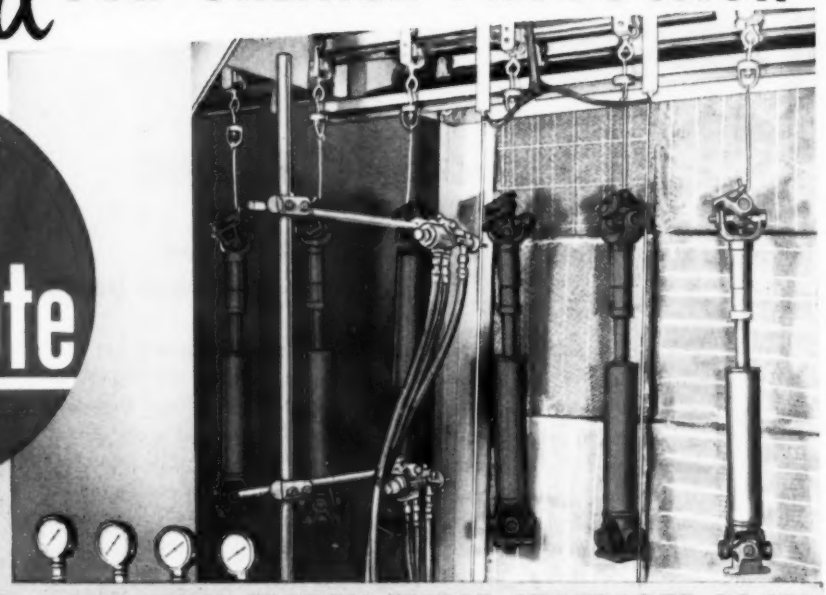

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THE finish LINE

GOOD BUSINESS CAN BE BAD — from one angle of the manufacture and sale of appliances and other products for the home. The February issue of *finish* included numerous reports of expansion plans by appliance and other metal products manufacturers, and many personal reports, from management and sales management of leading producers, pointing to exceptionally good business. All in all, the picture is exceedingly bright for 1953.

There is one respect in which this good business could be bad. That is, if sales management and salesmen in general allow themselves to slip back into the complacent attitude which has prevailed since World War II.

There is a job to be done

For over five years this page has been "harping" on the necessity for sales training at the factory level, at the distributor level, and at the retail selling level if the appliance and metal products industry is to maintain profitable production levels over the long pull.

In *The Finish Line* for February, 1948, the statement was made ". . . if you do not already have a plan (sales training program) in operation, it's high time you give it some serious thought."

In the February, 1949, *Finish Line*, it was stated: "Most progressive manufacturers *have* been working hard during recent months to develop strong sales programs and charge the batteries of a sales force in preparation for the inevitable — a buyers' market.

"Although the average manufacturer's salesman is a bit rusty, and the young men have never experienced the necessity of 'selling,' the task of sales training and organization development is not in any sense insurmountable."

The real job is at the retail level

Quoting further from *The Finish Line*, February, 1949: "The task that will be very discouraging to many producers is that of getting their sales story to the ultimate buyer. All of the high powered selling and advertising in the world will never accomplish the desired result until the retail salesman and his boss are a part of the selling team.

"Facts that are developing now show that in far too many instances manufacturers have been willing to 'go along' on the basis that consumer demand was sufficient to absorb the normal production capacities of their expanded manufacturing facilities."

Since the preceding lines were written, there *has* been activity among the leading producers to again get their sales machinery whipped into shape for campaigning to get their respective shares of the consumer dollar. Sales organizations that have been inactive for years are now on the road with distributor and dealer road shows, and have *started* what would appear to be a return to a genuine selling program for carrying the product story through the retail outlets to the consumer.

It would be sad, indeed, if the present optimism resulting from current orders leads *any* manufacturer to ease up on these plans for aggressive merchandising. For any who may not as yet have instituted a progressive plan, and now feel the necessity lessening, the result of good business will indeed be bad.

Doorbell pushing will be back

As we said on this page in July of 1952, "Those of us who were brought up on 'doorbell pushing' salesmanship have long since dropped from the picture, and the younger salesman of today has no precedent to persuade him that this type of selling is a logical and important part of the appliance sales picture.

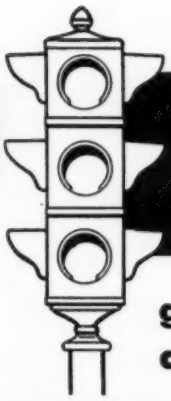
"Our contention is now, as it was in 1948, that the only sure way of keeping the greatly expanded production facilities in the appliance and allied industries at profitable working capacity (over the long pull) is to 'get down to earth' and back to many of the selling fundamentals and selling plans that helped to build the multibillion-dollar appliance industry during its formative years."

With the steadily increasing capacity in the metal products field, it becomes increasingly necessary that each producer take full advantage of the present situation to build a sales organization and a selling program throughout the entire sales chain so that when the time comes that the consumer is inclined to tighten the purse strings — and the time must come — our industry will be prepared to keep the factory wheels turning.

Dana Chase

EDITOR AND PUBLISHER

STOP



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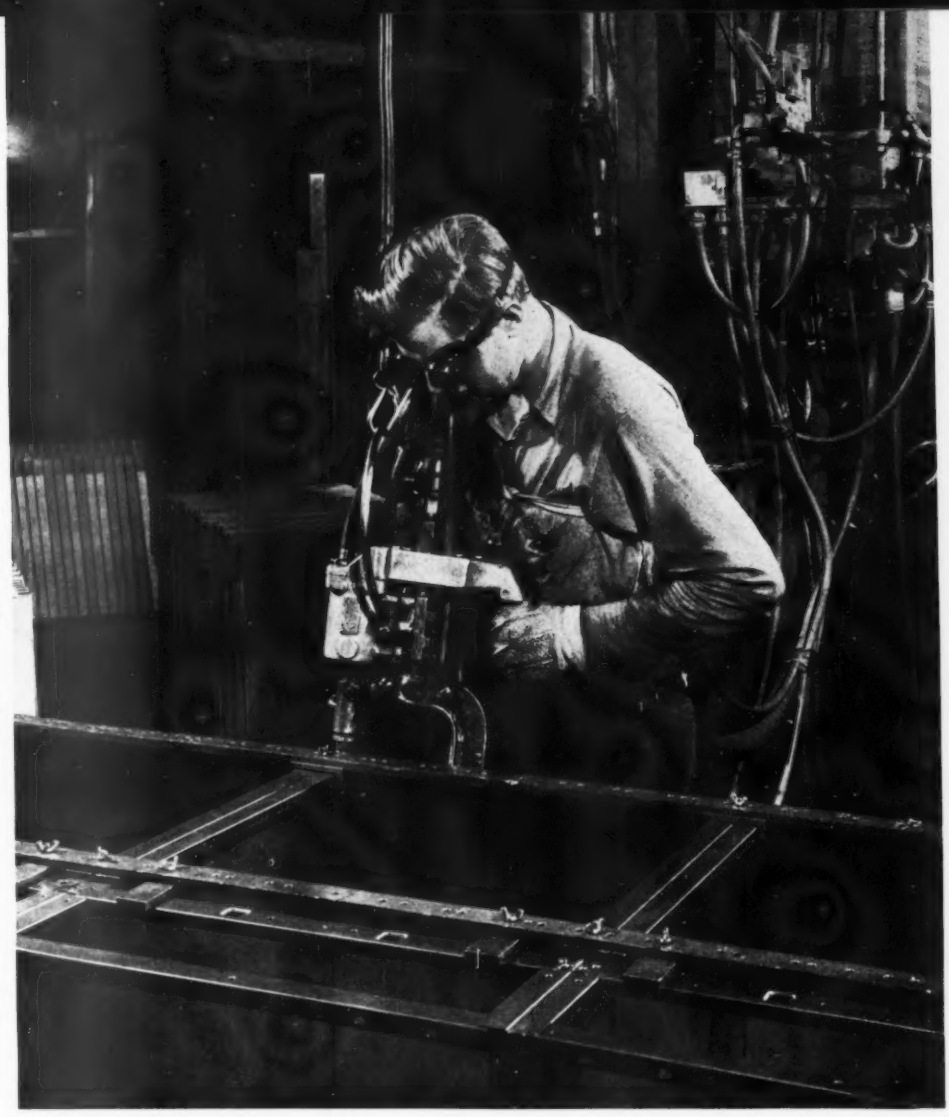


Spot welding *— an undersink kitchen cabinet. The Berger plants have 54 spot welders, 16 arc welding units and 18 gas welding units. Following fabrication, the kitchens are inspected, then hung on conveyor line for cleaning, phosphatizing and painting operations.*

Republic Steel's "ore to store" kitchen cabinet operation

first published photo-report on actual production operations at Berger Mfg. Division

FROM start to finish, Republic Steel Kitchens are a 100 per cent product of Republic Steel Corp. — the first "ore to store" operation in the steel kitchen industry.

Raw materials for the kitchens come from the company's own iron ore and coal mines. These materials become steel in Republic furnaces, and Republic mills furnish the sheets which go into the company's new kitchen line which is now marketed under the company's own trade name.

Republic's steel kitchen program was under development for more than a year. $1,000,000 was spent in retooling the Berger Manufacturing Division Plant No. 2, in Canton, Ohio.

More than 1,000,000 square feet of floor space is required for the myriad operations of the Berger division plants. It is one of the largest metal fabricating operations in the country. For more than 50 years, Berger has produced a wide variety of steel products, ranging from air conditioning cabinets to work tables, steel office furniture, lockers, shelving and building products.

Plant No. 2 is a straight-line production plant of the modern type, comprising 192,114 square feet of floor space, where steel sheets and strip for the new kitchens are cut, formed, fabricated and finished.

Republic Steel Kitchens — *are fabricated at Berger Manufacturing Division Plant No. 2, in Canton, Ohio. The straight-line production plant has 192,114 square feet of floor space, and is located on a 15-acre tract suited for further expansion. For more than 50 years the plant has turned out a wide variety of products ranging from air conditioning cabinets to work tables, steel office furniture, shelving, building products and voting machines.*

Production scheduling — *for the new kitchens is in the hands of C. P. Foehrenbach (left), superintendent of the plant, and H. P. Lhota (center) and J. A. McEowen, general foremen. These men supervised the $1,000,000 retooling of the plant. Much of the retooling fund went into dies needed to turn out the 13 sizes and styles of cabinet sinks, 16 varied counter cabinets, a like number of wall cabinets and several utility cabinets, counter tops, fillers, spacers and accessories.*

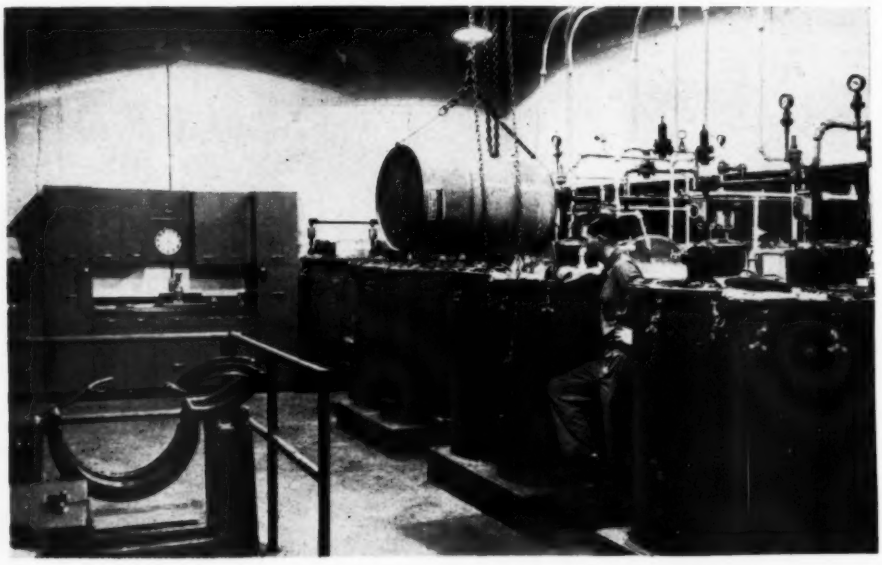
Steel storage area — *in raw steel warehouse where tons of 22 and 24 gauge sheet steel are stocked. Trucked into the Berger plant from Republic's mills, the sheets are moved to the shear room from the warehouse by a 10-ton overhead crane.*

First fabrication operation — *feeding a cold rolled sheet into press brake. This large machine, one of several in the plant, is set to shear off, to proper length, sheets needed for formation of base and side panels of new kitchen units.*

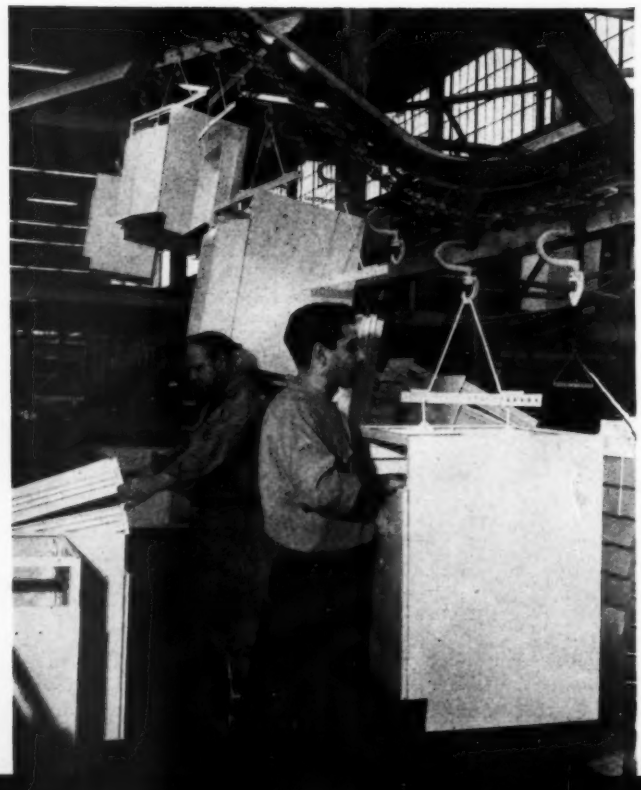
Forming wall cabinet bases—*on press brake. Following this operation, bases are loaded in an upright truck and hauled to the welding department for assembly. Prior to assembly, doors and drawer heads are insulated with a moisture-proof and non-absorbent fibrous asbestos-asphalt coating.*

Phosphatizing operation — *in fully-automatic spray-type machine of which there are three in the plant. Each machine is 145 feet long, and performs six operations. The conveyor lines, which total 3000 feet, pass through the machines at the rate of 64 inches a minute. Operations include: cleaning with tri-sodium nitrite and tri-sodium phosphate at 160°; two 130° water rinses; phosphatizing; water rinse; and 130° spray of chromic acid. The kitchen units are dried at 325°, a process which also tests the insulation in doors and drawer heads.*

Painting equipment — *at Berger plant is capable of covering 87,050 square feet of surface each hour. The plant has 32 spray booths, six dip tanks and 40 baking ovens. After passing through two 20-foot spray booths, for the prime and finish coats, the cabinet units pass on the conveyor lines through the ovens where the finish is baked on at 325° to 350° F. for about a half hour. An air cleaner pumps clean air into the spray room at the rate of 250,000 cfm. Photo shows spray finishing a cabinet with synthetic enamel.*



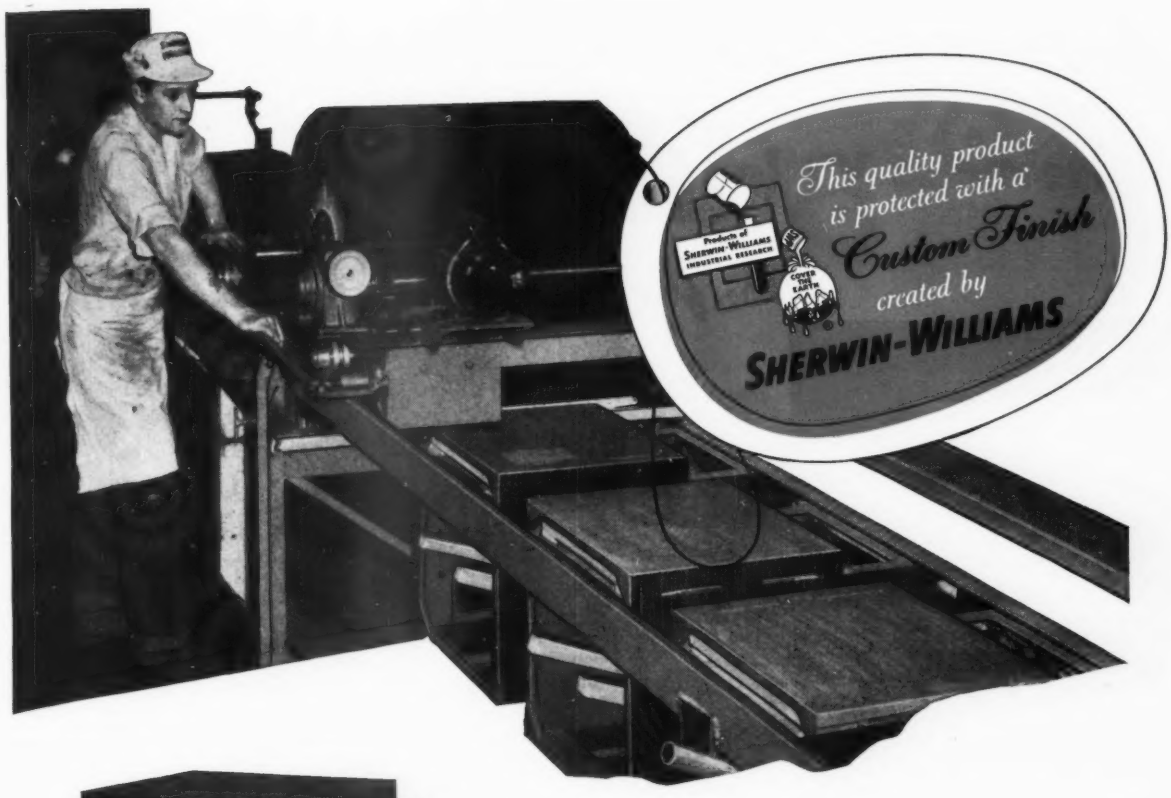
Central paint mixing room—*where all paint is prepared and pumped to the spray booths. Each pumping unit has four 70-gallon tanks, each with its own agitator. Paint drums are put in the mixer, shown at lower left, before use. Next, drums are conveyed to the tanks by a chain hoist and paint is screened as it is poured into the tanks. In addition, each pump has its own dirt trap.*



NOTE

Packaging and materials handling operations are shown in the Safe Transit section (Pages ST-8-9).

Assembly area — *where each cabinet is closely inspected before installation of hardware, including stainless steel door and drawer pulls, noiseless door strike and catch combination, dome-shaped plastic bumpers and nylon drawer slides. Each of the three conveyor lines which unload here has carried Republic Steel Kitchens units through 1000 feet of operations from the starting point.*



"WOOD" FINISH ON METAL

SPEEDS TV CABINET OUTPUT!

TV cabinets with the luxury look of finest grained wood . . . accomplished with time and money-saving advantages inherent with metal finishing! It's a production achievement of Doehler Metal Furniture Co., New York, New York—leading maker of quality metal and wood furniture—in the manufacture of TV cabinets for a large producer of electrical equipment.

"Wood graining" is done through a unique, semi-automatic process that minimizes finishing time, yet produces an accurate appearance of expensive wood cabinets. Cabinets are first coated with a specially-formulated Sherwin-Williams metal primer, which provides the proper base color. Then, a perfectly-simulated wood grain pattern is imprinted onto the primer, followed by a Sherwin-Williams mar-resistant lacquer. The soft, hand-rubbed lustre of this final finish gives depth to the pattern . . . adds to the appeal of the finished cabinets.

★ ★ ★

May we help you, too? Whatever your requirements, you can get qualified help through your Sherwin-Williams Industrial Representative. Ask him too, about Sherwin-Williams identification aids. There's no better way to take advantage of an outstanding product feature—the finish—than by identifying it with the Sherwin-Williams name and trade mark. For details, write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, O.

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PERMA-VIEW

for SUNSHINE-WATERLOO

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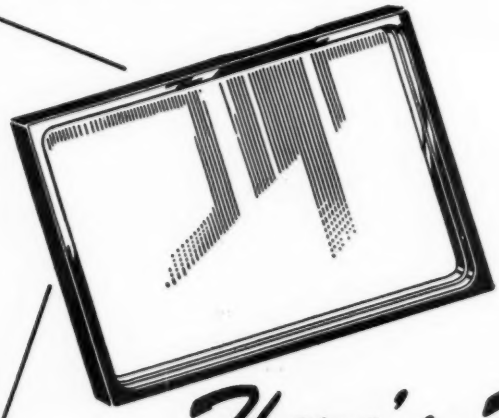
Many more top line range manufacturers in the United States and Canada will be using the Perma-View "visible baking" sales feature during 1953 than in any preceding year.



Here's Why

Perma-View lends salable beauty to your product. All that meets the eye is crystal clear tempered glass and gleaming chrome trim—no unsightly sealing strips are visible —yet—Perma-View is perfectly sealed so that the crystal clear visibility is retained—*Year after Year.*

Perma-View comes to you ready to assemble into *your* oven door—"Out of our carton into your oven door"—lending time-saving and space-saving economy on your assembly line.

Perma-View is made in sizes to suit your door—aesthetically correct—Perma-View engineers will gladly assist you in selecting the proper window for your oven door. Just write or phone —Perma-View will be on the job immediately with the kind of product and service you have hoped for.

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Applying grain finish to steel TV cabinets

Doehler Metal's approach to grain-finishing metal cabinets for General Electric

Exclusive feature finish

New finishes for metal, formulated to simulate luxurious wood grains, have given impetus to the manufacture of steel television cabinets on a high speed, production line basis.

Engaged in such an operation for General Electric is the Doehler Metal Furniture Co. at its Plainfield, Conn., plant. It is producing cabinets in grain finishes and in various sizes for G-E's television line.

Editor's Note:

We believe *finish* readers will be interested in following the trend from wood to steel for another important home product — TV.

Furniture by the Doehler organization is well known. For many years the company has produced metal furniture for hotels, restaurants, schools, public buildings, hospitals and other institutions. Doehler-built units have served the nation's Armed Forces in all quarters of the globe, on land and afloat. Finishes are required to stand all climates, from the tropics to the Arctic Circle.

In this project a big name in TV and appliances, G-E, is combined with that of the furniture manufacturer for the production of modern steel cabineted television sets.

Photos courtesy Sherwin-Williams

Appearance of fine wood — production advantages of steel

In a brochure on its Black-Daylite line, General Electric has this to say about the metal cabinets: "This handsome new cabinet will be at home in any room in your house. Constructed for durability as well as appearance, you will find it an attractive asset to your home. . . . "

Besides reproducing faithfully the wood grain it simulates, the television cabinet finish must have the inherent depth and warmth found in quality furniture. To achieve these attributes on a production line operation requires good materials, skilled workmanship and controlled processing.

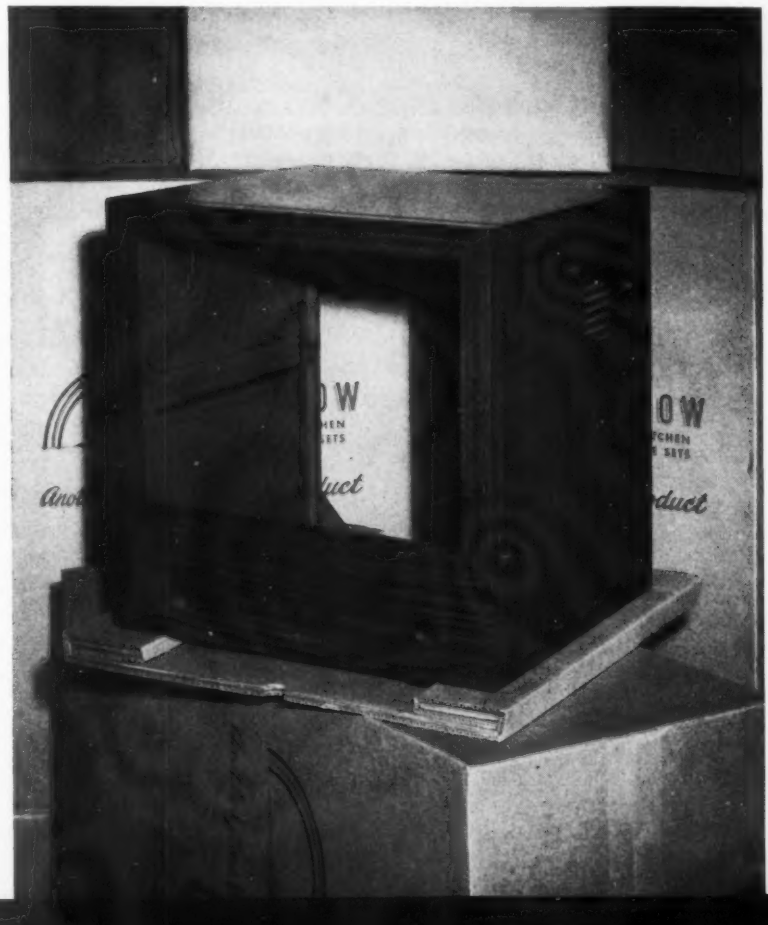
The Doehler finishing system for metal TV cabinets was perfected in cooperation with the company's supplier of industrial finishes. In brief, the system as covered in this "photo story" is this:

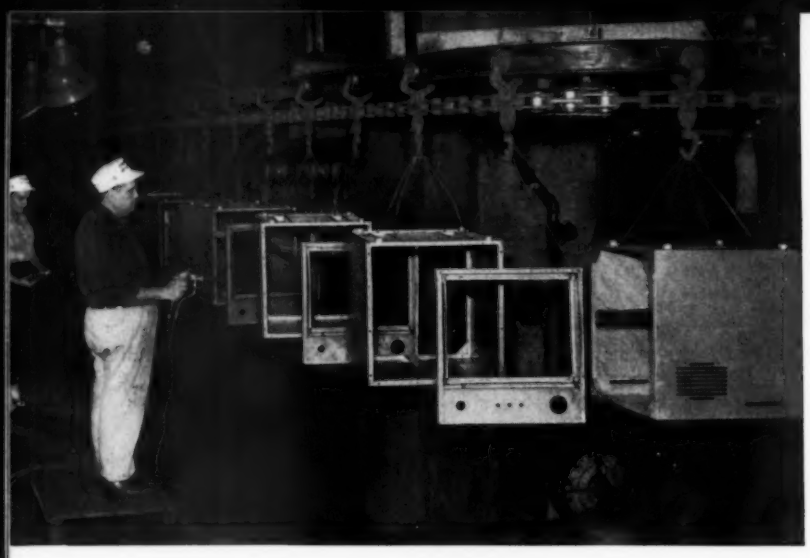
Both hand and machine graining used

After cabinets are cleaned and phosphatized, they receive a spray coat of brown television primer formulated to provide the correct base color. Following an air-drying period, the cabinets are oven-baked for 20 to 30 minutes at 275° F. After cooling, they are hand sanded in preparation for the wood graining operations, one by machine for cabinet bodies and another by hand for cabinet fronts. There follows a hand touch-up to perfect the grained appearance. The next step is another baking period at 275°F.

The units then move into a lacquer spray room for the final coat of mar-resistant lacquer, which also is formulated for the specific application. The final operation is a baking period of between two and three hours in the lacquer oven, where the cabinets are force dried at 110° F. →

Ready to receive TV unit is this metal cabinet finished in a soft wood grain.



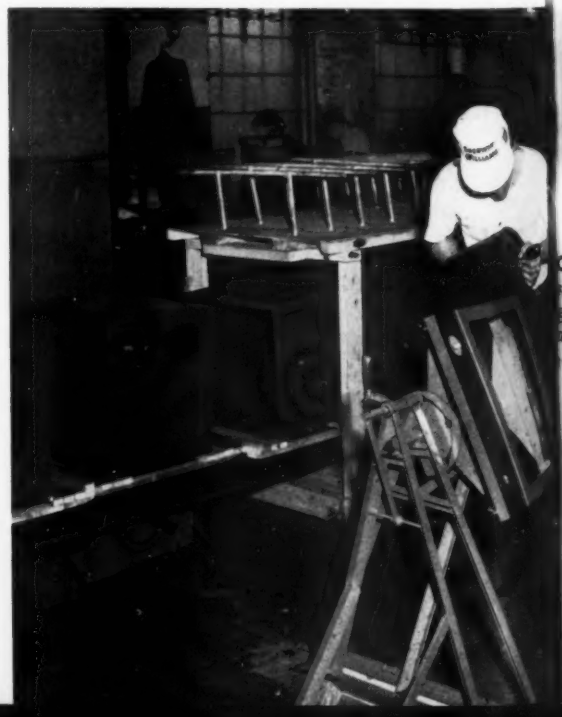


TV cabinet finishing line — *Formed and assembled cabinet bodies and fronts, cleaned and phosphatized, enter the primer spray booth where operators spray a brown "TV" primer, affording metal protection and providing the proper base color. The cabinet bodies are then carried by conveyor through proper air drying period and into oven where the primer is baked for 20 to 30 minutes at 275° F.*

Hand sanding — *following primer baking. Upon leaving the baking oven, the cabinets are cooled, then hand sanded to insure perfectly smooth surface for the following wood graining operation. After being hand sanded, the cabinets are moved on roller conveyor to the graining area.*

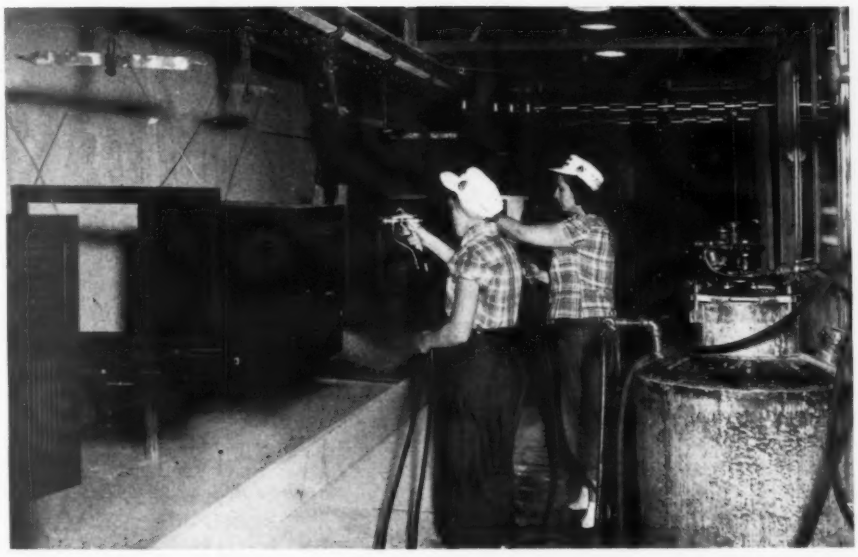
Machine rolls graining — *on three cabinets at one time. The large roller is covered with a gelatin face which picks up the inked wood grain from an etched copper plate, then imprints the grain onto cabinet bodies. After inspection, cabinets again are placed on conveyor line and baked for 20 to 30 minutes at 275° F. in a second oven.*

Hand graining process — *for cabinet fronts. The wood grain impression is transferred from a gelat roller by hand to the front of a TV cabinet. Note co veyor line carrying cabinet bodies that have be primed, baked and sanded. The line is en route to t wood graining machine.*



Hand touch-up and blending — *After the wood grain impression is applied to cabinet fronts, these operators perform hand touch-up and blending to insure perfect appearance of wood grain before the fronts are baked.*

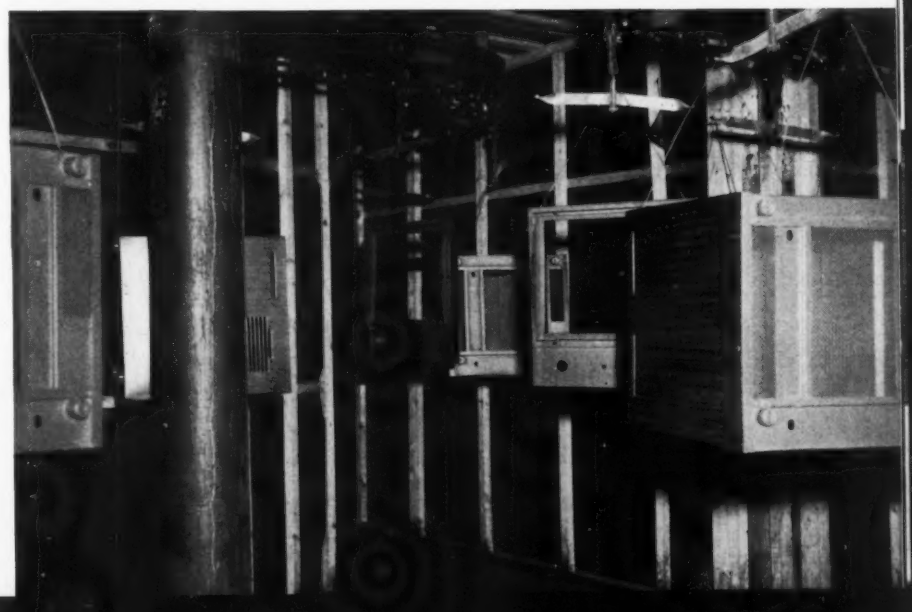
Wood grain baked on cabinets — *The TV cabinets leave a baking oven which cures the wood grain impression, preparing the cabinets for lacquer finishing. The baking period is from 20 to 30 minutes at 275° F.*



Final coat application — *These operators are spraying the final coat of mar-resistant lacquer on the cabinets and fronts as the units move through a large spray room. Sprayers are given special training in the operation of the guns and application techniques.*

NOTE

Packaging operation is shown in the Safe Transit section on Page ST-3.



Cabinet units enter lacquer oven — *After the spray application of the lacquer, the cabinets are gently force-dried for two to three hours in an oven at 110° F. This process insures proper drying of the mar-resistant finish.*

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PATENTS PENDING

ENGINEERED FOR SIMPLICITY

. . . constructed for dependability

Chicago Vit is pleased to announce that it has been appointed sales representative for the Quinn-Rogers VITRA-PUMP. The VITRA-PUMP is a diaphragm type pump especially engineered to handle viscous liquids. It is designed and constructed of materials which assure maximum efficiency and long life in service for pumping vitreous enamel slip.

- **NO GEARS OR IMPELLERS TO WEAR OUT**
- **SIMPLE DESIGN . . . RUGGED CONSTRUCTION**
- **SIMPLE, FLEXIBLE MOUNTING ARRANGEMENTS**
- **VARIABLE CAPACITIES**
- **BALL BEARING CONSTRUCTION**
- **NO PACKING TO WEAR OUT**
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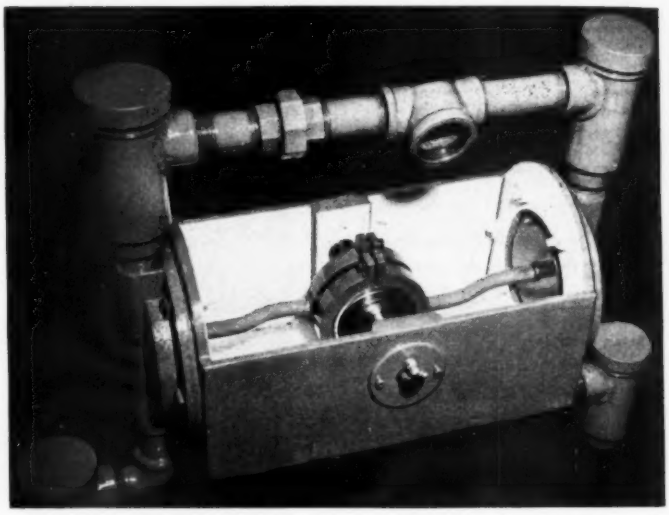

S P E C I F I C A T I O N S

NAME: Quinn-Rogers VITRA-PUMP
MODEL: No. A52
CAPACITY: 11 Gallons per Minute
OVERALL PHYSICAL DIMENSIONS: 21" long x 24" high x 13" wide
DIAPHRAGM MATERIALS: Natural rubber or synthetics depending upon the material to be pumped
MOTOR:* ¼ H.P. with 5.66:1 speed reducer
PUMP WEIGHT: 93 pounds
SHIPPING WEIGHT: Approximately 100 pounds
SHIPPING POINT: Forest Park, Illinois
*Optional

See your Chicago Vit sales or service man for full details on the VITRA-PUMP.

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Representative members of the PEI Process Development Committee observe a demonstration of electrostatic spraying of porcelain enamel on refrigerator door liners at Staticote Systems, Inc., Chicago. Left to right: M. Pouilly, DeVilbiss; J. L. McLaughlin, Chicago Vitreous Enamel Product; R. S. Goldthwaite, Rutenber; G. Holzberger, Hommel; Edw. Mackasek, managing director, PEI; M. B. Gibbs, Inland Steel; R. Beck, Binks; and J. J. Baker, International Harvester.

Electronics enter porcelain enameling field

a progress report on use of electrostatic spraying for porcelain enamel appliance parts

by J. L. McLaughlin • CHAIRMAN, PROCESS DEVELOPMENT COMMITTEE, PORCELAIN ENAMEL INSTITUTE

FOR the past several years manufacturers of certain electronic devices have endeavored to interest the appliers of porcelain enamel in the use of a power-pack unit which, with controls, grid wires, shields, and grounds, would develop an electrostatic charge upon the atomized enamel slip and cause it to be attracted to the ware being sprayed. The principles of operation are relatively simple and the equipment has been used with measurable success in the synthetic finish field, all of which would make it appear a simple matter to adapt it to use in the porcelain or ceramic field.

The earliest trials were not conclusive, and for a while work on electrostatic spraying of porcelain enamel was dropped. Subsequent improvements have been made in electronic equipment, spray guns, and material control which appear to justify reappraisal of the benefits which electrostatically assisted spraying could offer.

As stated, the principles of attraction between two bodies of differing electrostatic charge are relatively simple. The problem has been to make the material behave according to these principles and avoid deviation patterns induced by conditions incident to the nature of the material and the equipment used in the spray application.

Influenced more by the potential advantages rather than the present state of technological achievement, the Process Development Committee of the Porcelain Enamel Institute has

taken electrostatic application under consideration in conjunction with its present work on a manual for the application of porcelain enamel to metal. The Committee participated in a demonstration of electrostatic spraying on January 26, 1953, at the site of Staticote Systems, where representative pieces of stoves and refrigerators were sprayed. This was part of a series of operating demonstrations participated in by representatives of porcelain enameling plants (both captive appliance plants and jobbing plants), frit producers, steel companies, and spray equipment manufacturers. The quality of the sprayed ware and the efficiency of the equipment were observed to be substantially improved over previous trials.

Editor's Note:

Early work with electrostatic spraying equipment and porcelain enamels was published in the following issues of *finish*:

January, 1945, "Electrostatic Spraying Offers New Possibilities for Enamel Application" by Richard E. Helmuth, of Harper J. Ransburg Co. (now Ransburg Electro-Coating Corp.)

June, July and August, 1945, "Electrostatic Spraying of Porcelain Enamels", by James B. Willis, of Pemco Corporation.

October, 1946, "A Three-in-One Plant Synchronized for Quantity Production" by Claude Cleghon, of Clyde Porcelain Steel Corp.

February, 1951, "Electrostatic Spraying Experiments with Porcelain Enamel".

It is beyond the scope and intent of this report to render an opinion of the practicability of this method, but rather to report that promising work has been done and that successive trials have shown consistent improvements.

The apparent advantages in this system are:

1. Increased percentages of the material coming from the guns is delivered to the ware, thus reducing material cost and overspray with its attendant reclaim problem. This indirectly reduces the dirt contamination hazard.

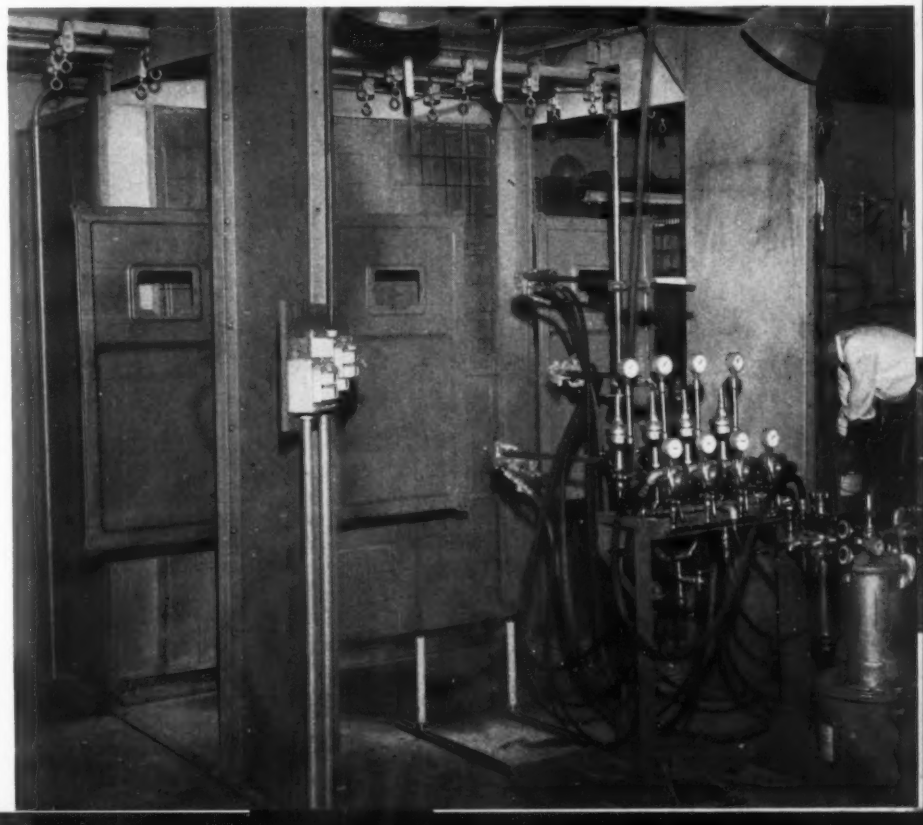
2. Lower application cost: Reduction in labor cost of spraying. Elimi-

to Page 95 →

Mildred Fair demonstrates the simplicity of operation of a typical power pack unit used to charge the grid wires of electrostatic spraying equipment. Output of pack is in range of 100,000 volts.

finishfotos

This photo shows refrigerator door liners passing through electrostatic spray field. Visible are pressure tank, atomizing pressure dials, fluid pressure dials, and three stationary guns mounted on adjustable arms. Three hoses feed to each gun; one for enamel slip, one for atomizing air, and one for actuating fluid needle. Two fine grid wires stretch vertically between two sets of white porcelain insulators visible at the ceiling and floor lines of the booth.



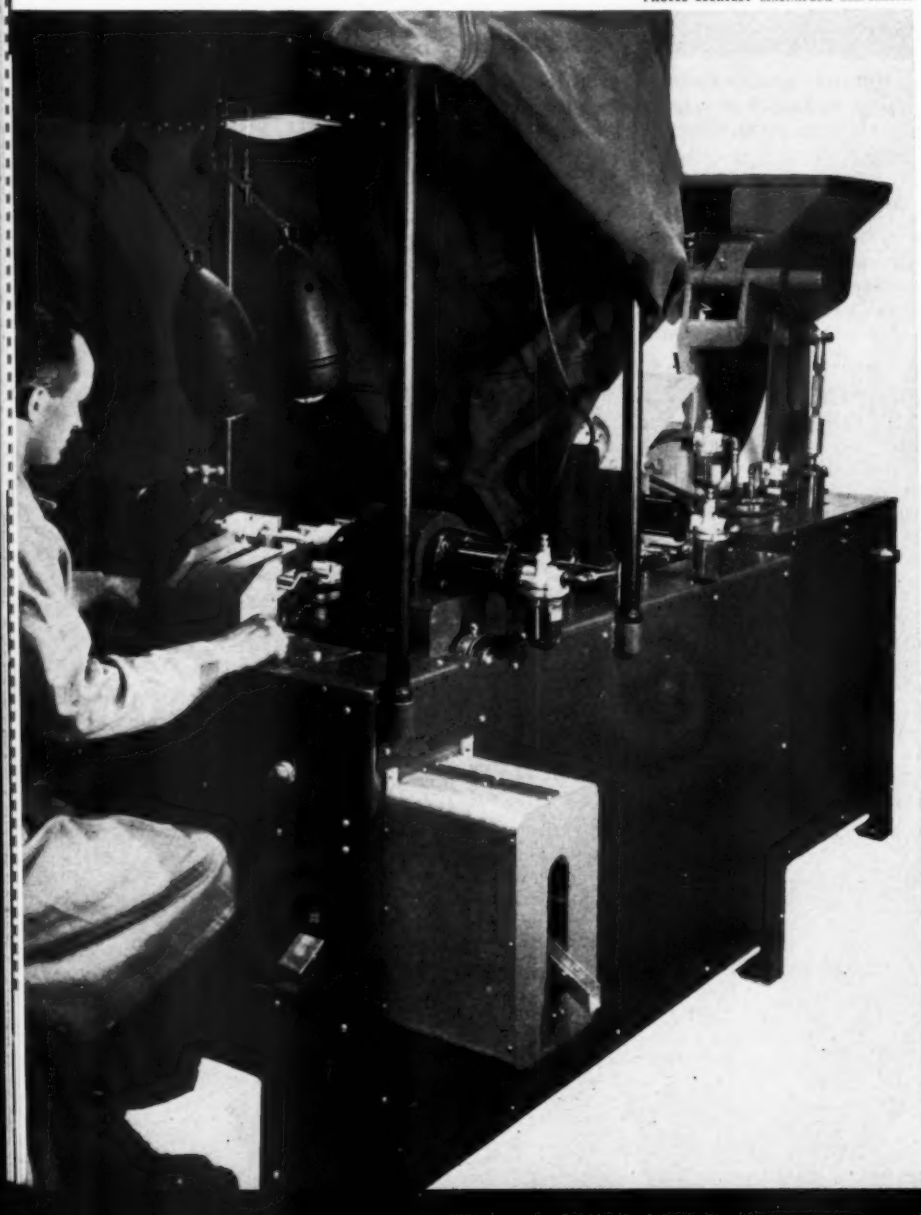
Magnetic particle production inspection

stressing the importance of inspection standards and inspection procedures

by Gilbert C. Close • WESTERN EDITOR

DURING the past ten years, tremendous strides have been made in the techniques of magnetic particle inspection. A lot of credit for this development work is due to companies who, at the beginning of World War II, suddenly found themselves faced with the problem of giving efficient, fast and reliable inspection to thousands of critical parts daily. As a result of this need, and because of its speed and efficiency, magnetic particle inspection was literally "lifted" from the laboratory and fitted into the production line. Constant usage of the process lead naturally into research to extend its applications and improve results.

PHOTOS COURTESY MAGNAFLUX CORPORATION



A hopper fed automatic unit for in-process inspection of automotive water pump shafts, in rough ground condition. All loading and processing is automatic requiring only that inspector view parts under black light to note fluorescent lines marking defects, and press button for ejection of defectives through reject chute.

Manufacturers of magnetic particle inspection equipment responded quickly to this recognition, and their own research laboratories began to hum. Better and more versatile equipment was designed and built, and deviations from the original process were researched and established on a sound and dependable basis. One important deviation to appear was the use of magnetic powders coated with a fluorescent material so that they would glow when exposed to black light. This simplified the detection of flaws when the part was inspected in a darkened room or tent. The glowing fault pattern literally attracts the eye and does not require the close and unaided visual search that is necessary when using the conventional magnetic particle inspection technique.

With ready proof that the magnetic particle inspection techniques can be adapted to the production line, more and more companies are adopting the process. Firms that for many years have been depending upon the doubtful results of visual inspection alone are beginning to realize that more dependable inspection is to their advantage. The payoff accrues in two ways. . . . . First, the favorable impact of consistently high product quality on sales and company

Automatic high speed inspection with fluorescent magnetic particles includes automatic rotation of parts before inspector's eyes, and gives low cost control of rough forgings before machining is wasted on defectives.

reputation cannot be doubted. Secondly, the ability to detect and reject faulty parts early in the process of manufacture reduces materially wasted time and wasted machine hours.

But installing a new inspection system in a manner to bring forth its utmost efficiency is not a simple task. It is foolhardy to assume that any product can be produced in which each part is 100 per cent perfect. Nor is such a degree of perfection necessary. One part may contain many flaws, none of which will be detrimental to its service life. Another identical part may contain a single flaw that makes rejection necessary. Practically all flaws can be detected by the magnetic particle inspection technique. Which to reject and which to disregard is the big question that must be answered before magnetic particle inspection can be employed to the best advantage.

Importance of inspection standards

It is not the purpose of this article to describe the types of magnetic particle inspection equipment that are available, nor to explain how the process is employed in specific kinds of inspection work. Such information is readily available from field engineers employed by the manufacturers of the inspection equipment. Rather, we will try to point out the importance of establishing *inspection standards*, or more specifically, quality standards to control the magnetic particle inspection process in a manner to procure the highest product quality at the lowest possible cost.

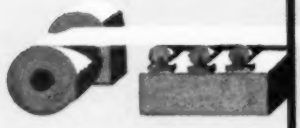
It can be briefly pointed out, however, that several types of equipment are available, some using the dry powder method, some using the magnetic powder in a liquid suspension. Various colors of powders are available to contrast with different backgrounds, as well as the fluorescent coated powders for black light inspection. Machines using direct current, full wave alternating current, or half-wave rectified alternating current can be purchased. But it is rather meaningless to talk about equipment until the inspection standards have been worked out and established. Eventually the type of faults that must be detected in production parts will dictate the type of equipment to use.

In setting up a magnetic particle inspection department, either using the conventional type of machine or the fluorescent-black light method, and in the development of inspection standards to control the inspection work, three paramount factors must be taken into consideration. *First*, what type of defects are important, and what defects can be disregarded? *Secondly*, where in the process of manufacture should each part be inspected? And *third*, how can the magnetic particle inspection tech-

Forging lap in aircraft fitting could have been found in rough forging with magnetic particle inspection.

Section cut through a large metal forming die which had repeatedly cracked in forming corners. Excessive "flaking" — or little cracks — were found present throughout the die block material.

problem....HOW TO CUT STEEL COSTS



Both systems begin with mill coil. However, if you are now buying sheet you are faced with the following costs.

For mill cutting to random lengths, simply shearing to reach sheet form, add **$.10** per hundred weight to basic steel cost.

For squaring to tolerance at the mill add another **10 percent** to your basic steel costs.

Then for wrapping and palletizing to keep the sheet clean and easy to warehouse **add an additional $.025** to the costs.

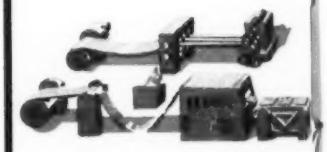
The steel, of course, must be delivered regardless of form.

solution....A WEAN SLITTING and SHEARING LI

With the Wean system you buy coils, simply prepared . . . eliminate mill extras. Delivery is of comparatively few width sizes.

The fewer sizes . . . the smaller purchasing and inventory staffs required.

And you save approximately 30 percent in storage area.



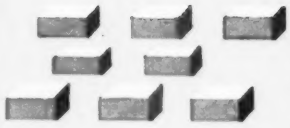
The Wean Line converts the coil of steel to resquared multiples at rates up to 200 feet (or 100 cuts) per minute. Tolerance control is easily held within accepted

Actual Savings in Steel Costs of 20%

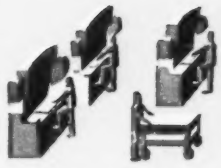
To many steel fabricating people this amazing speed of cutting-to-length to resquared tolerances has seemed unbelievable. But, to many others, who have seen one of these Wean lines in operation, talked with people who operate them, gone over actual figures, this is a production line "must".

When we say savings up to 20 percent in your steel costs we mean just that. Total up the costs approximated above . . . check them against the book . . . against your own cost sheets. Find out what you're paying for getting steel from coil to final sheet size, ready to form. If it's more than a dime a hundred weight then you should know all about the Wean line. Get in touch with one of the offices listed below and let a qualified Wean representative work with you — using your figures if you wish — in proving the Wean line can effect a substantial savings where you and your operations are concerned.

Where you're buying sheets of various sizes you'll require about **30 percent more help** in your purchasing and inventory control departments.



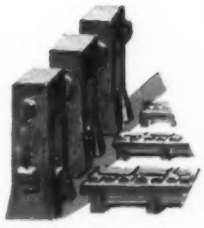
And about **30 percent more space** in your warehousing set-up.



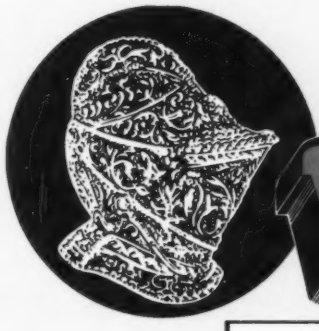
Then, if you further resquare to multiples in your own plant you're paying **an additional cost of at least $.35 per hundred weight.**

Thus, prior to fabrication, you have added approximately $1.00 to every hundred pounds of steel, even though you are using plain light gauge metal.

INGLINE



range. The entire "extra" cost prior to fabrication here . . . just a fraction of the $1.00 plus per hundred weight cost of standard methods.



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MORE FACTS ON GETTING "A BETTER START FOR YOUR FINISH"

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Five specialized products—three brand new—for preparing aluminum prior to anodizing, chromatizing, or other finishing methods

Here's a versatile new group of materials that will be of major interest to everyone concerned with the finishing of aluminum. One or more of these outstanding products can help finishers do a faster, safer, more economical, and considerably better job—on any grade or alloy of aluminum, and in conjunction with any type of finishing.

First of the three new products in this "package" is **Pennsalt Cleaner A-27**—a mild, non-etching aluminum cleaner that removes soils and marking inks without attacking the metal. Even when allowed to dry on the work, it will not streak or stain. Yet this superior cleaner costs the same as or less than competitive cleaners.

Second in the group is Pennsalt Cleaner AE-16—a new non-scaling, non-sludging etchant that produces an exceptionally uniform satin etch. AE-16 solutions stay in balance, are easy to control, and work fast. Tank cleaning with AE-16 can be done with just a stream of water—no more rock-like scale that requires hand-chipping.

Third new product is Pennsalt Aldox—a powdered acid-type desmutter and deoxidizer. Aldox completely replaces nitric acid in these jobs—gives you an easy-to-handle, safe powder which doesn't produce irritating fumes. Aldox desmuts to give a brighter surface than acid; it deoxidizes to provide a low SCR for spot welding.

Pennsalt Chemicals

The two time-tested cleaners which complete the "package" are **Pennsalt Cleaners 85** and **MC-1**—recommended for use wherever excessive grease, dirt, or an uneven oxide film must be removed before etching the aluminum.

A COMPLETE TECHNICAL SERVICE is available to help you choose and use these Pennsalt surface-preparation materials in the most efficient, most economical manner on your particular aluminum products.

We shall gladly send you detailed information or have a representative call at your convenience. Write: Metal Processing Dept., Pennsylvania Salt Manufacturing Co., *EAST:* 115 Widener Bldg., Phila. 7, Pa. *WEST:* Woolsey Bldg., 2168 Shattuck Ave., Berkeley 4, Calif.

Closeup of a magnetic particle indication that shows a non-visible crack in a weld which would seriously weaken the weld in service, or make the application of an enamel coating very difficult.

niques be employed to reduce costs?

The answers to these three questions as they pertain to a specific part will constitute the inspection standard for that particular part. But arriving at the correct answers is often a difficult task. No one person in an organization of any size is qualified to write an inspection standard without seeking help from others. Generalizations will not do. The information on which to base the acceptance or rejection of a part must be specific or costly errors are bound to occur.

The methods used by most large aircraft companies to develop their inspection standards can be employed by any company desiring to get the utmost out of their magnetic particle inspection set up. While the development of an inspection standard is a laborious job at the time, it should be remembered that it will be used to control the inspection on thousands of parts. Only a few parts erroneously rejected, or a few faulty parts that escape unnoticed, may cost more in the long run than the total cost of developing an efficient inspection standard.

Classifying defects

Let us take the above three questions in order and see how the answers to each can be employed to develop an efficient inspection standard. First, what defects are important and dangerous to the quality of a part, and what defects can be disregarded?

To answer this question effectively, combined engineering, metallurgical and inspection knowledge of a part must be correlated with its service record of failures.

The engineer must know the loads for which the part is designed, and how loads are applied, i.e.: direction of loading, and whether it will be in tension, torsion or compression. Will stress reversals occur that will tend to exaggerate stress concentrations in even the smallest of flaws running transverse to the direction of the applied force?

The metallurgist must know the type of material used in the part, the various treatments it receives, and its physical and chemical characteristics. He must be aware of its ductility, its weldability, and other characteristics which may affect its ability to stand up under the service conditions to which it will be subjected. The inspector must know how to test and inspect the part in a reliable manner so that all deviations from specification requirements will be detected.

In setting up the inspection standard, these three men must decide what faults to look for, and what faults can be disregarded. Some tolerances must be allowed for each requirement the part must meet, as some variations are bound to occur in dimensions, hardness, and quality levels.

The inspection procedure

When the *inspection standard* is tentatively established, the inspector must develop an *inspection procedure* that will reveal all faults that must be noted. At this point, the type of magnetic particle equipment that will be required begins to make itself known. In working out such an inspection procedure, the inspector in turn asks himself pertinent questions.

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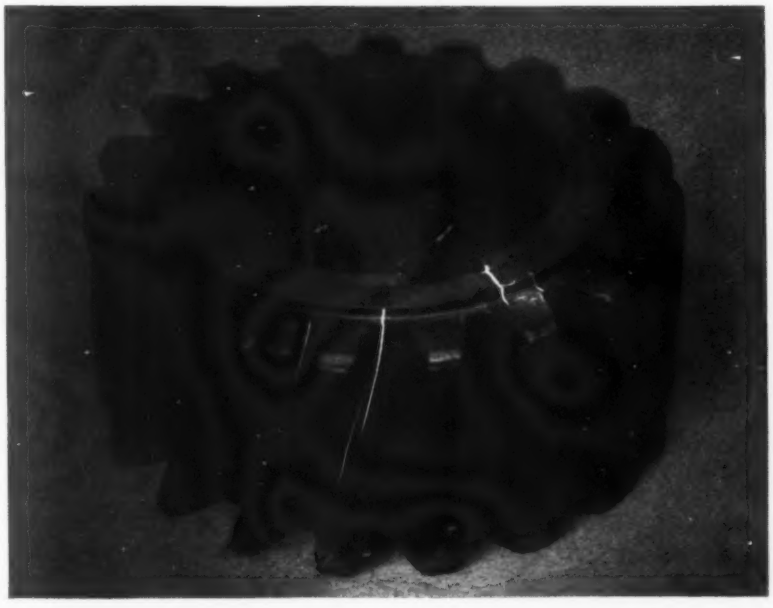
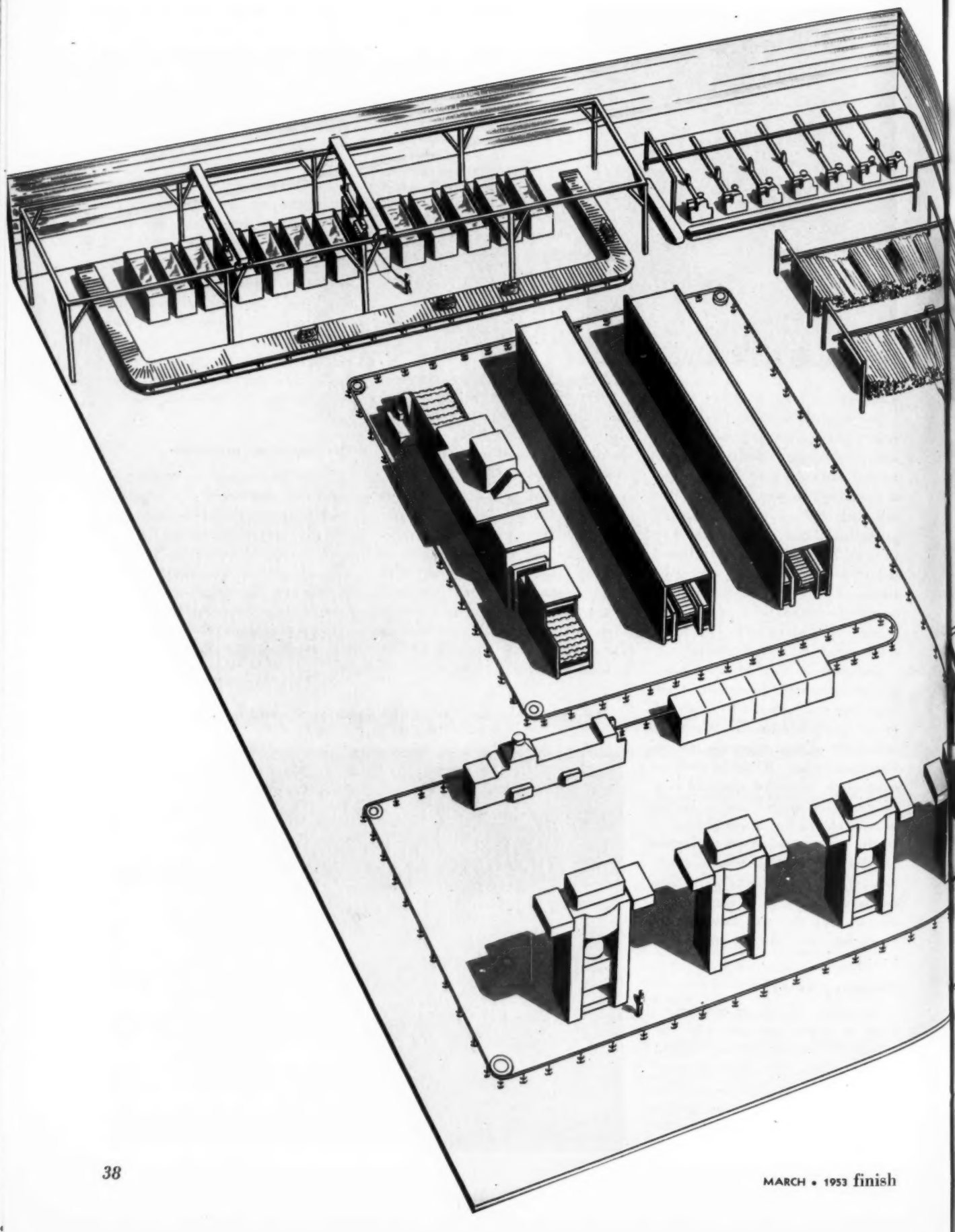
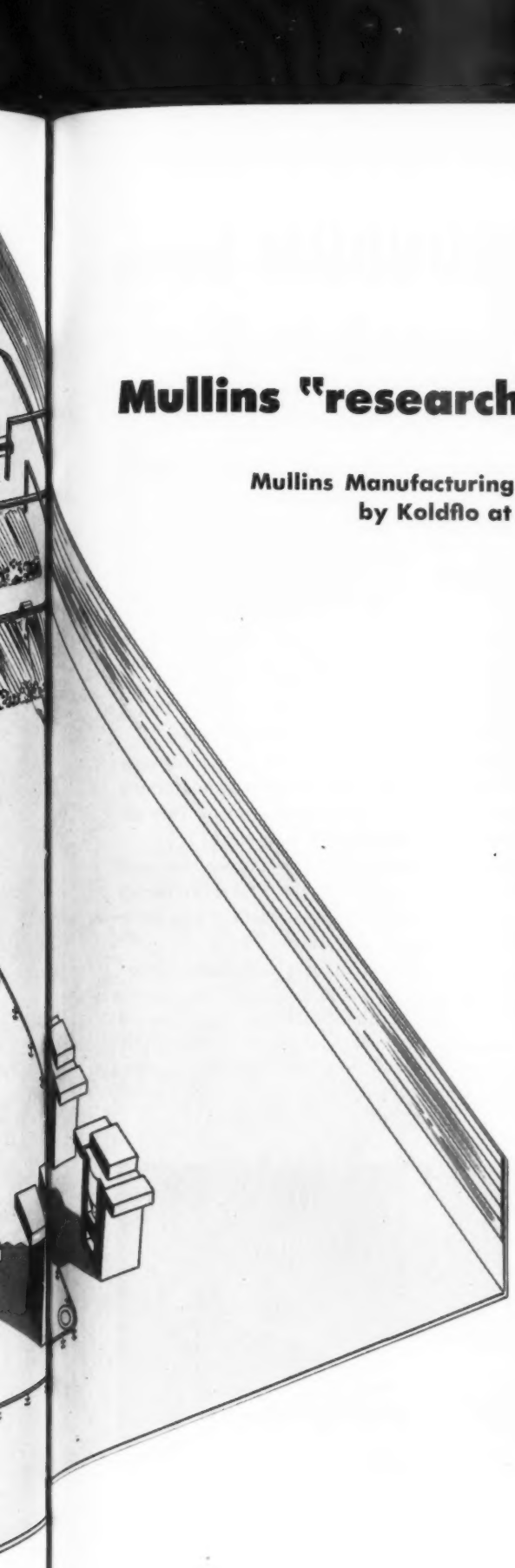
Here fluorescent magnetic particles glow very bright to indicate severe cracks in this gear.





Mullins "research baby" goes commercial

Mullins Manufacturing Corp. will produce commercial products by Koldflo at new $2,600,000 plant addition



THE artist's conception at the left shows what the area of the new Mullins Manufacturing Corp. plant addition at Warren, Ohio, will look like.

The new plant addition will be devoted to the manufacture of articles for the commercial market through the Koldflo process. Work is now in progress on this project which will cost an estimated $2,600,000.

The four 3000-ton presses, shown along the bottom of the drawing, and the two 2000-ton presses, plus the dry-off oven and washer (above presses), will occupy part of the present press room area.

All other facilities will be housed in a building, 180 feet by 110 feet, to be erected south of the press room. This new building will be connected to the press room by an overhead conveyor pass-over. The new addition will cover an area of 19,800 square feet.

Material will flow from the bar storage area to the saw area shown at the upper right where bar stock will be cut into slugs. The slugs will then be processed through the series of tanks at upper left. From here they will pass, on the overhead conveyor, to the presses for the first draw. Following the first draw, the blanks will pass through the washer and dry-off oven and on to the annealing and stress furnaces. This process will be repeated until final product results.

Koldflo is a process for forming heavy bar stock at room temperature which was developed by Mullins. It is this process that has been employed to produce shells for national defense at the Liberty plant.

Since the early development work on the process, Mullins' engineers have been discovering an ever-increasing number of different types of articles that can be produced through this process. Thus, the decision was made by management to enter the field of commercial production through the Koldflo process.

★ ★ ★ ★ ★ ★ ★ ★

"Refractories by CARBORUNDUM have already outlasted others 2 to 1"

...says William Hammond, who has operated this furnace 22 years

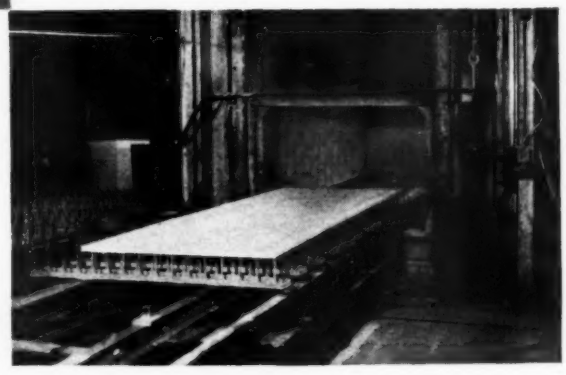
This oil-fired batch furnace has a CARBOFRAX silicon carbide muffle, and MULLFRAX electric-furnace mullite supporting arches. The muffle has had 3½ years' service, and the supporting arches 2½ years. This is now double the life of previous materials used.

William Hammond, operator of this furnace, says: "I'd estimate that these refractories by CARBORUNDUM are still good for a couple of years more. They are far superior to the ones previously used."

Down time has been reduced to one two-week period per two to three years' service. Refractory costs, of course, also have been reduced in proportion to the increased refractory life.

For muffles, support arches, pier facing and leveling brick, grate rests, and burner blocks, check up on super refractories by CARBORUNDUM. They often can increase furnace efficiency, and practically always will cut material and labor costs. Why not write or phone us today?

Operators William Hammond (left) and Charles Ewald (right) load section of sign on rack. This enameling furnace operates 16 hours a day.



Here, the furnace is being charged. Note the CARBOFRAX muffle. It transfers the heat far faster and more uniformly than any other refractory material.

Use Super Refractories by

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NOW COMES THE PLUS...

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Thus, after exhaustive laboratory research and tests, our technicians can and must follow Ing-Rich Frits through every step in our plant, checking each process under PRACTICAL working conditions.

You can't beat this combination of scientific knowledge coupled up with "old man practical experience."

Will you permit one of our service engineers to bring definite proof to you that Ing-Rich plant tested FRIT has reduced rejects for our customers and can bring you the same highly desirable results?

THE RESULT OF SCIENTIFIC KNOWLEDGE

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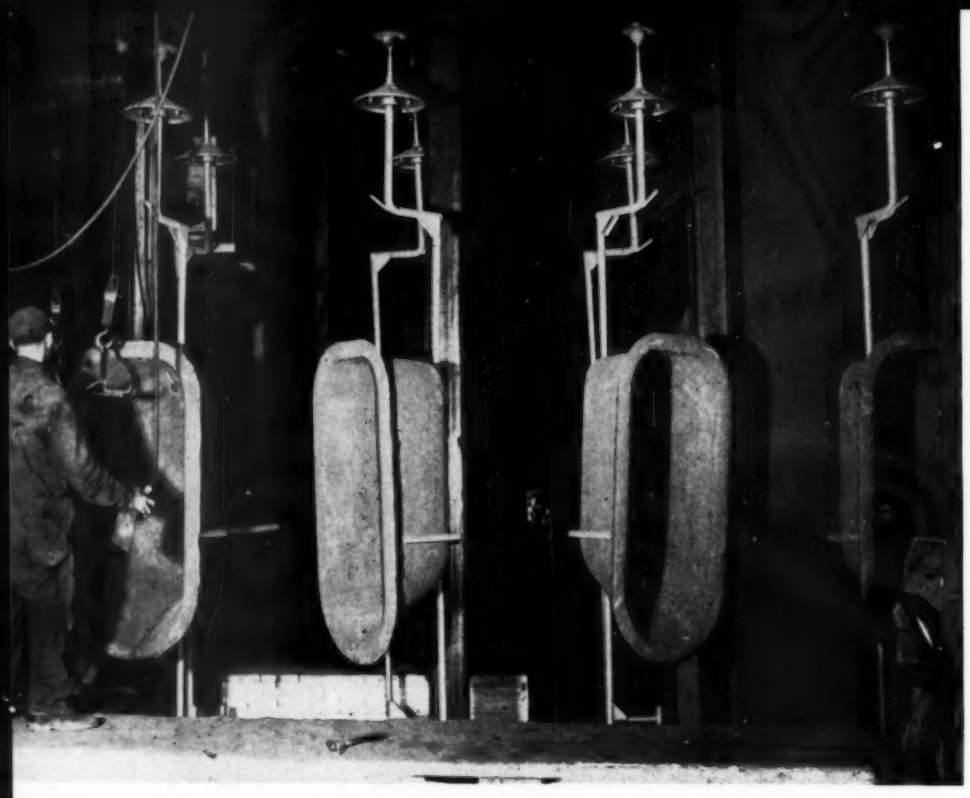


Bath tubs enter the blast cabinet in a steady procession. Only one pass through the cabinet is necessary for thorough cleaning. The company also blast cleans other sanitary ware, including sinks, laundry tubs, drain boards, etc.

Blast cleaning sanitary ware castings

describing how a Canadian manufacturer cleans castings prior to enameling

by Eugene F. Anderson • SPECIAL ENGINEER, AMERICAN WHEELABRATOR & EQUIPMENT CORP.

Exclusive feature finish

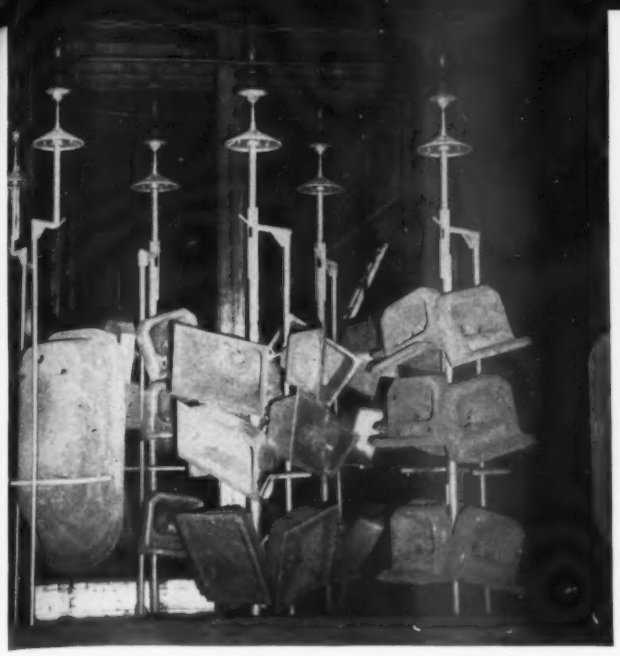
An important step in the manufacture of porcelain enameled sanitary ware is the cleaning and preparation of the surface of the casting to receive the enamel coating.

An interesting arrangement for cleaning and surfacing castings prior to enameling is in use at Port Hope Sanitary Mfg. Co., Ltd., Port Hope, Ontario. The core of their cleaning room is an airless abrasive blasting cabinet which incorporates a monorail conveyor to carry the castings through the abrasive blast. Five rotating bladed wheels, 19½" in diameter and 2½" wide, are mounted on one side of the cabinet, and they each throw, by centrifugal force, hundreds of pounds of metallic abrasive at the work, as it passes through the cabinet on the conveyor.

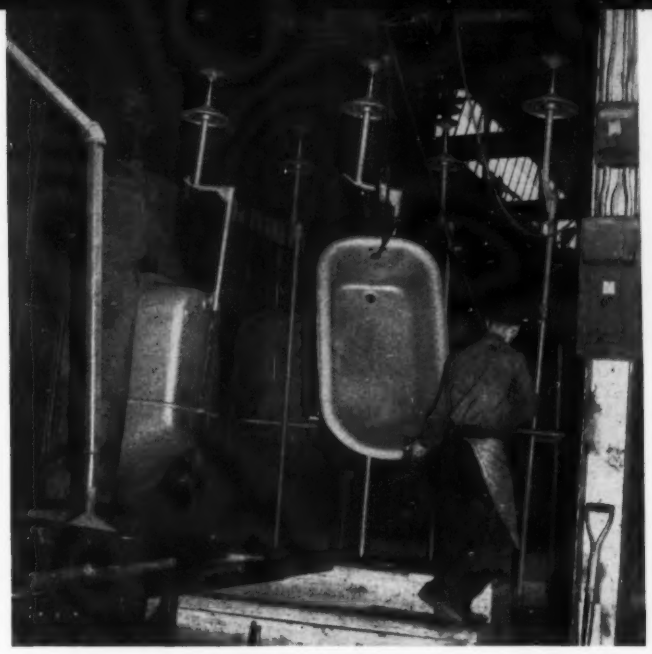
The only manual labor required is for loading and unloading the conveyor. Castings to be cleaned are hung on each of the twenty hooks of the constantly-traveling conveyor, whereupon they move into the blast zone. Each hanger is capable of holding one large bath tub or nine smaller castings. Each of these hangers continuously rotates as it passes through the abrasive avalanche from each of the five hurling units. The abrasive wheels are staggered as to height, to provide blast coverage to all surfaces of the work and to provide for cleaning a wide range of work sizes. Since the abrasive field of each wheel strikes the rotating casting at a different angle, crevices and pockets are thoroughly cleaned.

Continuous cleaning for metallic abrasive

The metallic abrasive in the cabinet is used over and over. After striking the work, it drops through a steel grate floor into a hopper below the machine, from where it is carried by a bucket elevator to an abrasive separator and storage hopper mounted above the cabinet. By means of an air wash, all sand, dirt and abrasive fines are removed from the usable abrasive. Dust is carried into the dust collector, and the abrasive drops into a storage hopper to be re-fed to



Nine pieces of small ware or one bath tub can be hung on each hanger of the conveyor of the blasting cabinet.



Removing a cleaned bath tub casting from the blasting cabinet conveyor with a monorail hoist.

the hurling wheels for re-use.

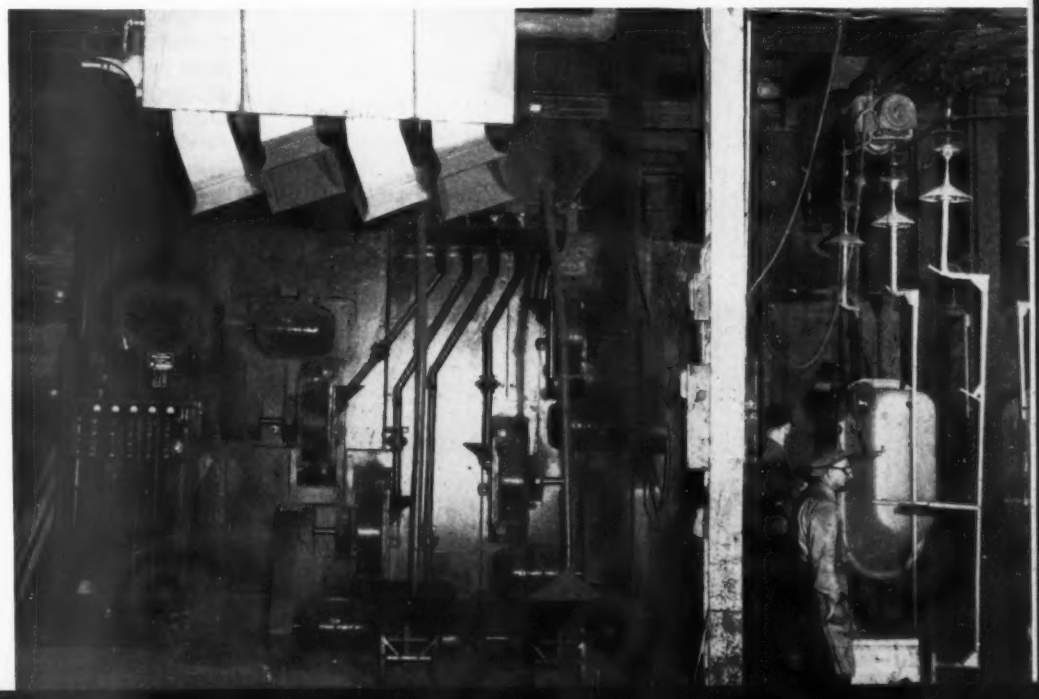
The entire cleaning cycle is both continuous and automatic. Another advantage is that the workmen are always outside the cabinet during blasting. The entrance and exit vestibules of the cabinet are equipped with several rows of rubber curtains to keep abrasive from flying out of the cabinet, and into the working areas of the plant.

After blasting, the castings are ground to remove molding flash and burrs and then welded to close any holes. The cleaned surface left by blasting makes grinding faster, since there is no "loading" of the wheels from sand and scale. When smooth areas result from these operations, the castings are sent back to the cabinet for reblasting, so that they get a surface uniformly roughened to a matte-type texture to insure a perfect bond for the subsequent enameling.

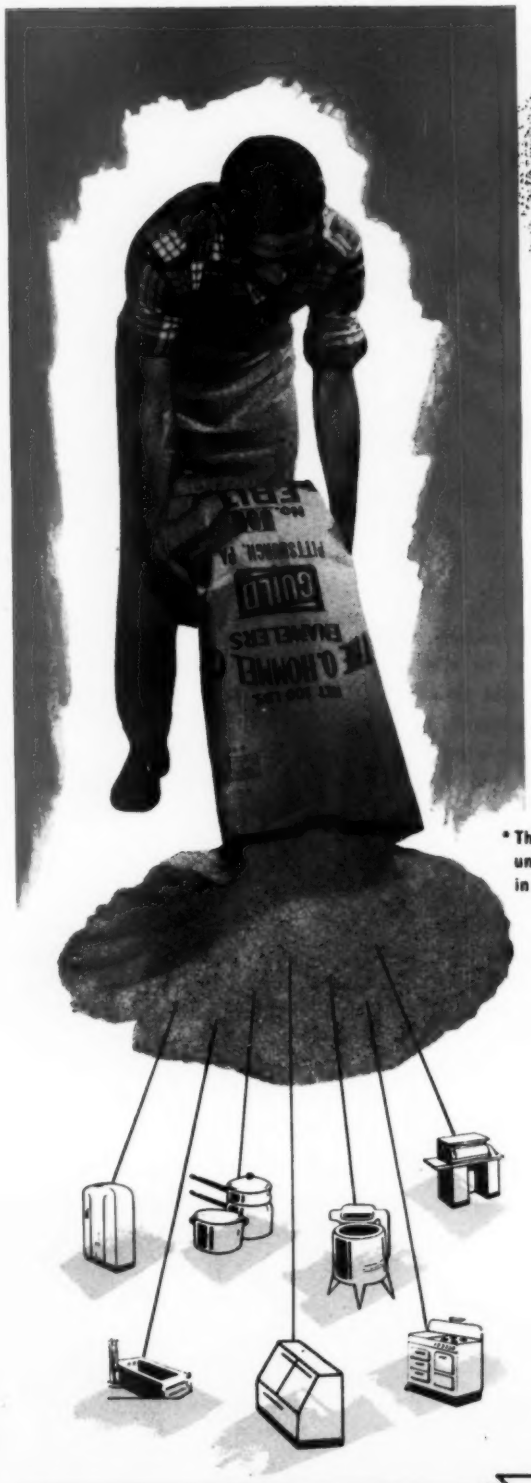
Although large bath tubs constitute the bulk of the castings produced at this plant, other sanitary ware which is blast cleaned prior to enameling includes lavatories, kitchen sinks, trays, laundry tubs, closet tanks, drain boards, urinals, trap standards, etc. A cleaning production of one conveyor hook a minute is maintained on all types of work.

In addition to cleaning prior to enameling, the blasting cabinet is used for de-enameling castings having a faulty finish. Prior to the installation of the blast cabinet, several airblast rooms were used for cleaning purposes, but cleaning costs and time required for handling work were excessive. A large crew of sand blast operators and handlers were also needed in the cleaning room.

Since all cleaning operations are now mechanized, labor requirements were drastically reduced to the few men necessary to load and unload the conveyor hangers, and overhead hoists facilitate these handling operations in the case of heavy pieces.



The blasting cabinet at Port Hope Sanitary Mfg. Co. Ltd. has five blasting units — on the wall of the cabinet. Loading and unloading are on the right.



HOMMEL TITE-WITE . . .

Try this frit of many uses in your own plant

For uniformity of color and the finest porcelain enamel finish, use Tite-Wite. This titanium cover coat frit is chemically balanced, properly smelted and water shattered to give a very uniform grain structure.* In your plant this means to you:

* This unretouched photo shows the uniform particle size you will find in each bag of Tite-Wite Frit.

- **Faster grinding**
- **Uniform specific gravity after milling**
- **Smoother spraying**
- **Wider firing range**
- **Maximum color stability**
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- **Better acid resistance**
- **Greater scratch resistance**

These advantages are the reason why more enamelers are turning to this Superopaque White Enamel that can be drained, swilled or sprayed.

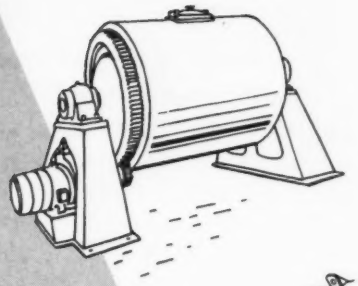
THE O. HOMMEL CO. PITTSBURGH 30, PA.

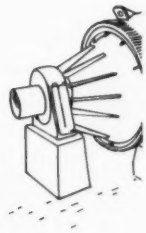
POTTERY • STEEL AND CAST IRON FRIT
CERAMIC COLORS • CHEMICALS • SUPPLIES
Our Technical Staff and Samples are available to you without obligation. Let us help with your problems.

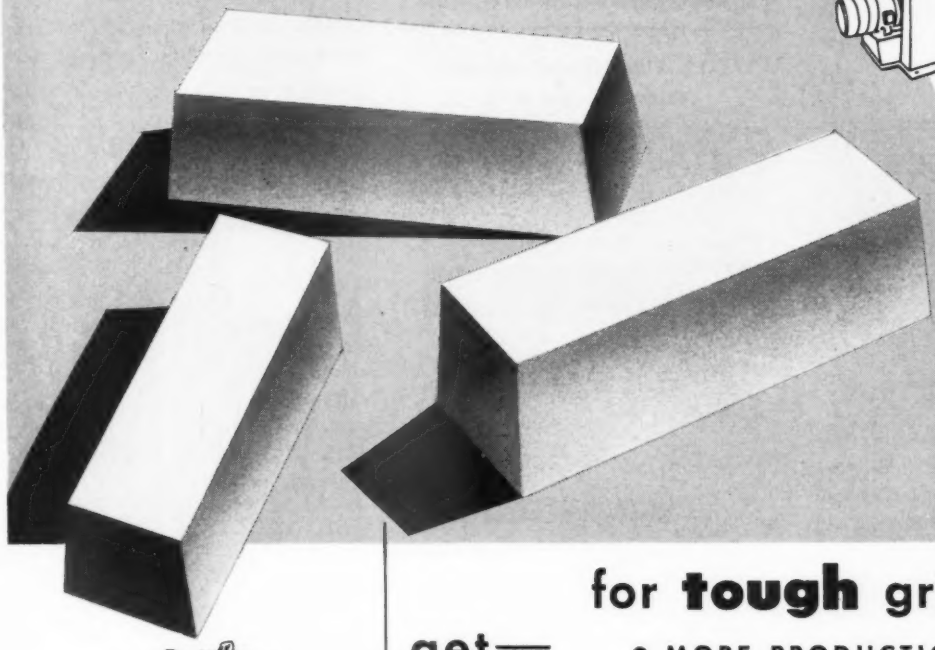
"THE WORLD'S MOST COMPLETE CERAMIC SUPPLIER"

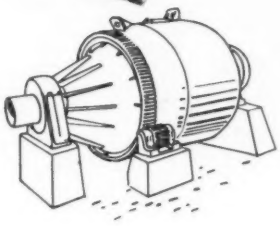
West Coast Warehouse, Laboratory and Office, 4747 E. 49th Street, Los Angeles, California

line with McDANEL
super high density brick









get— for tough grinding

- MORE PRODUCTION
- LONGER LIFE
- LESS CONTAMINATION
- LESS DOWN TIME
- GREATER ECONOMY

MILL LININGS
•
HAND ROLLED GRINDING BALLS
•
MILL HEAD ASSEMBLIES
•
METAL COVERED GRINDING JARS & MILLS
•
TANK & DRYER LININGS

McDanel Super High Density Lining Brick in routine production is giving better than two times longer life over conventional porcelain lining.

That's why — for hard, tough grinding — you should line your grinding mills with McDanel High Density Brick.

This high density brick — for all types of ball mill grinding — comes in a complete range of sizes to fit all types of batch or continuous mills.

Write for the McDanel Porcelain Products Catalog

McDANEL Industrial PORCELAINS

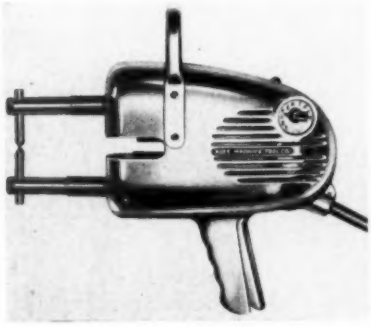
McDANEL REFRACTORY PORCELAIN CO.
BEAVER FALLS, PENNA.

Equip your mills with McDanel's patented Mill Head Assembly — avoid contamination and be assured of uniformity of batch.

New Supplies and Equipment

C-10. Electronic time-controlled portable spot welder

New A portable spot welder with built-in thyrotron controlled timer switch is now available. Any timing cycle from 1/60th sec-



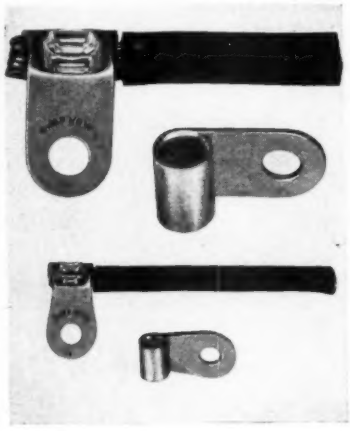
ond to a full second may be established by switch setting. All electronic controls and setting. It is said to be the first portable tool that will weld most alloys of aluminum sheets, as well as mild, stainless, galvanized and cadmium plated steel and other metals, to a 3/16th inch combined thickness. Standard model has a 7-inch throat and 3-inch opening. Additional throat depths up to 18 inches and special shaped arms and tips.

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form, or write to us on your company stationery.

C-12. Flag-type heavy duty solderless terminals

New These flag-type solderless terminals are available for eight wire sizes from #8 to #4/0.



Tongues are designed for a wide range of stud sizes. Made of copper, they are electro-tinned for maximum conductivity and surface protection. Terminals can be crimped to solid, stranded or irregularly shaped conductors or combinations of these.

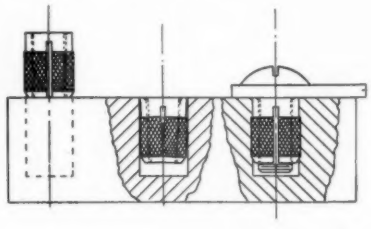
C-13. Air-impact press for light stamping, crimping, riveting, etc.

New A new air-impact press, providing up to 10,000 strokes per hour, is designed for high speed marking, assembling, brand-

ing, staking, crimping, riveting and light stamping. Pressure is obtainable up to 8 tons from 100# airline.

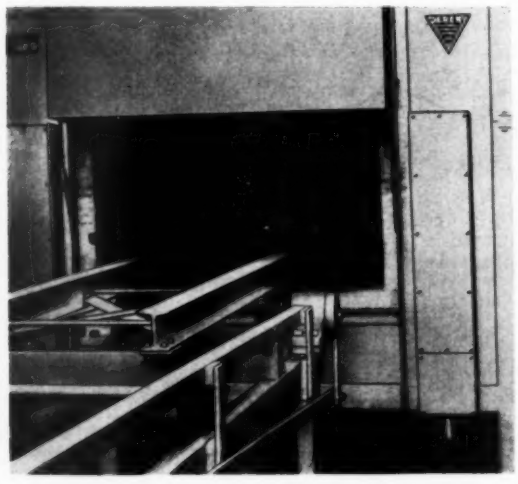
C-14. New screw locking insert

New The three-stage operation principle of this "knurled insert" is shown in the accompanying sections. The insert is distinguished by a large band of diamond knurling on its grip area.



C-11. Electric furnace for porcelain enameling or heat treating

New A new electric furnace is designed for porcelain enameling and heat treating operations.



Chamber size is 36″ wide by 48″ deep by 24″ high. The over-all size of the unit is 77″ wide by 71″ deep and 80″ high and is of all-welded construction. Designed to operate at a temperature of 2400° F. with a work load of 350 pounds of metal per hour. Furnace has rapid "recovery" time after the door is opened or closed during the change of loads.

Counterbalanced, atmosphere-tight door is operable by air cylinder. Data available on loading fork attachment.

C-15. Adjustable kiln firing stand

New Originating in the art enameling field, a new adjustable kiln trivet expands to hold objects of any shape up to 7½" in

size. It is claimed to do the work of at least five conventional trivets of graded sizes, while permitting perfect heat circulation and preventing "stilt marks." Although designed for enameling, it is said to have equal use in technical and experimental fields wherever objects must be securely but delicately held during high heat firing.

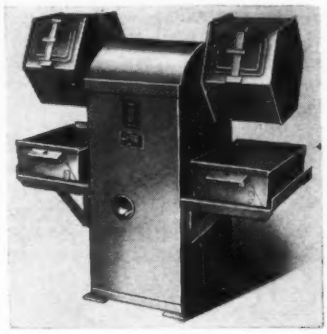
C-16. Compressed air-operated displacement pump

New A new compressed air-operated displacement pump is purely pneumatic in action, and has no rotating or reciprocating parts. Known as the Ejectopump, it operates automatically when connected to any compresed air supply line, and

pumps the liquids to be handled in a series of regular suction and discharge strokes. Since it is self-priming, the pump can be arranged above the level of the liquid to be pumped.

C-17. Twin-barrel finisher

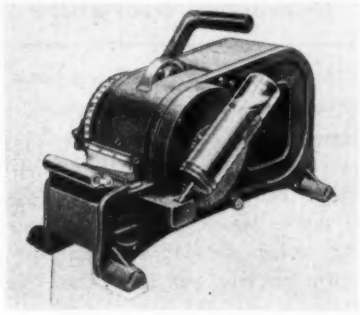
New This sturdily built machine will handle steel burnishing balls in both barrels. It has a ball bearing variable speed drive.



Standard barrels as furnished with this machine are 10¾" x 17", with larger sizes available. Barrels are attached by four bolts each, and may be furnished either unlined or vinyl plastic lined with safety-type cover which prevents pressure from building up in the barrels.

C-19. Gummed tape dispenser codes packaged products

New This counter model general shipping room tape dispenser can handle all reinforced, fiber-filled and other heavy duty industrial



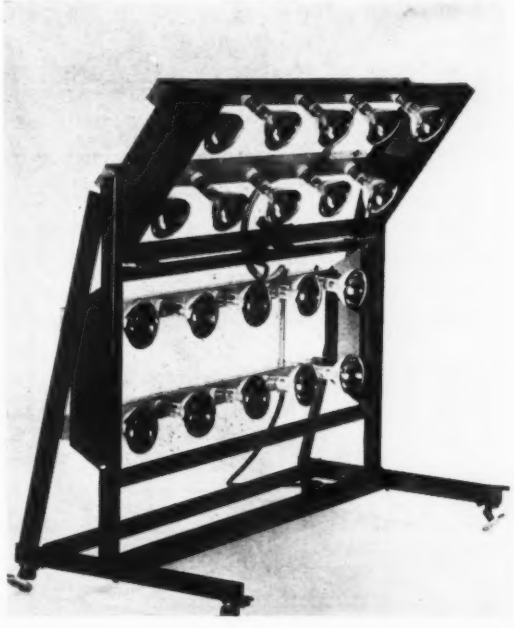
tapes. This dispenser also codes packaged products, eliminating the separate operations of stamping, marking, labeling, and stenciling.

C-18. Infra-red dryer utilizes 5000-hour life bulbs

New A new type of infra-red drying equipment has just been introduced to the finishing trade. It is fully portable, and uses 20 special 5000-hour life, infra-red bulbs. The area it will dry with great rapidity is long enough and high enough, for example, to cover the longest fenders of an automobile, or the widest rear deck in one operation.

Both panels with their 20 lamps can be raised or lowered to floor level up to 76 inches, making this dryer extremely flexible to use. By means of a one-man control handle, the upper panel of 10 lamps can be tilted to any desired angle.

This unit can be used on any 220 volt ac, single phase, light circuit. The total wattage is near 3900, so current consumption is not heavy.



C-20. Greaseless buffing composition

New A new greaseless buffing and polishing composition adheres strongly to the wheel face to form a heavy, fast-drying "head" which does not fly off, and remains firm even in warmest weather. The composition is available in aluminum tubes and in foil-lined cardboard cartons.

Industrial literature

301. Multiple rotary slitting book

New This 76-page book describes the advantages of a fabrication department doing its own slitting of flat sheets and coil stock. Use of slitters are said to ease strip supply, reduce inventories, and bring down the cost per ton. The book deals broadly with both the economics and mechanics of slitting operations.

302. Sixty-page heating catalog with 175 illustrations

New A 1953 catalog on electric heaters and heating devices is now available. The 60-page, two-color information and buying guide describes the equipments in terms of application, special features, installation, and pricing.

Indexed by process and application, the catalog contains methods of determining power requirements and heat losses by applications. These are explained by both graphs and formulas.

Various heater-types of products, including immersion, strip, cartridge, tubular, insertion, and fin heaters are illustrated. Other devices described include thermostats, switches, oven heaters, and induction heaters.

303. Folder on malleable castings

New This folder tells the principle reasons why malleable iron castings are an essential factor in the manufacture of mobile

equipment and for machinery in general that is subject to stresses and strains. Illustrations of typical parts made of malleable iron are included.

304. Porcelain enamel strip film now available

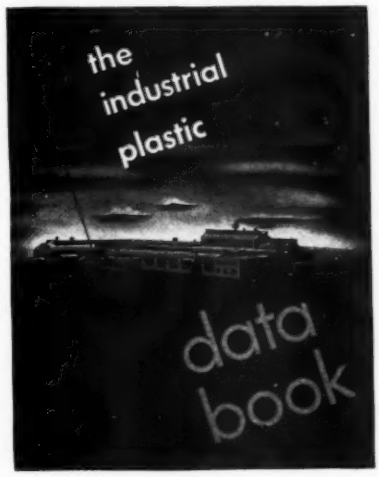
New A 60-frame, full-color strip film entitled "*Porcelain Enamel, The Lifetime Material of a Thousand Uses*", is now available. The film is packed in a metal cylinder approximately an inch in diameter and an inch in depth, for easy handling and mailing.

The film's production was handled along non-technical lines to form a narrative-type presentation covering the early history of porcelain enamel, description of "frit", enameling processes, spraying, and firing. It also covers the manufacturing processes and applications of porcelain enamel in the fields of *appliance manufacture, architectural,* steel plumbing fixtures, industry and sign manufacturing.

It is possible to add one frame at the conclusion of the film which will state "This film has been presented through the courtesy of the _____ Company, your address." Send inquiries regarding this film on your *letterhead* to *finish*.

305. A 36-page plastic data book

New This 36-page industrial plastic data book contains information on laminated and molded Micarta, including physical properties, design suggestions, tolerances, standard shapes and sizes, grade selection tables, and machining data.



306. Industrial temperature measurement-control manual

New A new manual entitled "The Design and Process Engineers Guide to Industrial Temperature Measurement and Control" is now available. This newly-revised 24-page two-color manual—available without charge to process engineers, plant managers, design engineers and heating engineers—presents the basic principles of industrial temperature control in practical fashion.

FINISH
360 N. Michigan Ave.
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No._____ **No.**_____ **No.**_____ **No.**_____

No._____ **No.**_____ **No.**_____ **No.**_____

Name _____ **Title** _____

Company _____

Company Address _____

City _____ **Zone**____ **State** _____

AT YOUR SERVICE

CENTURY VITREOUS

Top men in the industry on Finance, Management, Research and Development, Production, Sales and Service combine their talents to serve you at Century.

Combine this talent with modern production equipment and trained plant personnel, and you can see why Century frits are second to none for all types of porcelain enameled products.

Some enamel plants depend upon Century for all of their enamels — ground coats, cover coats, acid resisting frits and special purpose enamels. Some who divide their purchases depend upon Century for ground coats with the "lifetime bond."

You can get the best in frits — that have been plant tested — and save money too if you "buy from Century." Management likes these frits for their money-saving features, and plant men like them for their trouble-free workability.

If you aren't using Century frit now, start right for '53 by arranging for a plant trial soon.

TIME & PLANT PROVED FRITS

Every Century enamel is given a complete "proving ground" test before it is sold to our customers. In our own job enameling plant (box-type furnaces) and at General Porcelain Enamel & Mfg. Co. (continuous and box-type furnaces), they are applied *in production* to all types of fabricated metal parts before they are sold as "time-proved" frits.

CENTURY VITREOUS ENAMEL COMPANY

6641-61 S. Narragansett Ave., Chicago 38, Ill.

FRIT from CENTURY

FRIT MASTERS

ADMIRAL uses SPERRY GASKETS

Over three years ago Sperry Rubber & Plastics Company had the pleasure of working with Admiral engineers in the development of a special type gasket for refrigerator doors. We are proud to furnish these especially designed gaskets, together with other rubber components, for use on the new Admiral refrigerators and home freezers.

Sperry offers a complete service on extruded rubber and plastic products for the APPLIANCE INDUSTRY. Products for refrigerators, home freezers, washing machines, dryers, vacuum sweepers, etc., include door gaskets, bumper strips, seals, hose, lid gaskets, base gaskets, filler strips, and especially designed components.

If you use rubber or plastic components, it will pay you to join the leading appliance manufacturers who depend upon Sperry.

Sperry produces seals for jet engine shipping containers, gaskets and bumper strips for tanks, gaskets for powder cans, and other standardized and special rubber and plastic items for defense products. It will pay you to call on

SPERRY
FOR EXTRUDED RUBBER AND PLASTIC PRODUCTS

RELIABLE PROMPT S R&P SERVICE

The SPERRY RUBBER & PLASTICS CO.
31 West 7th Street • Brookville, Indiana
Telephone: Brookville 427

SERVEL NAMES PANTZ MANUFACTURING V.P.

Theodore L. Pantz has been named vice president in charge of manufacturing for Servel, Inc., Evansville, Ind., it was announced by W. Paul Jones, president.

Previously, Pantz was works manager of Seeger Refrigerator Co.'s Evansville plant; superintendent of tools, maintenance and processing for Frigidaire Division of General Motors; development engineer for the Point Breeze, Md., plant of Western Electric Co.; and chief engineer for P. Sorenson Mfg. Co., Long Island City, New York.

KRESKY MFG. PURCHASES WARD HEATER FROM NOMA ELECTRIC

Kresky Manufacturing Co., Petaluma, Calif., has purchased Ward Heater Co., Los Angeles, formerly operated by Estate Heatrola Division of Noma Electric Corp.

C. A. Miller, Kresky president, said the move brings together two of the oldest floor furnace producers in the country, Kresky having started in 1910 and Ward in 1909.

JOHN A. HURLEY RETURNS TO WHIRLPOOL AS V.P.

Directors of Whirlpool Corp., St. Joseph, Mich., have elected John A. Hurley vice president, effective April 1. He will direct distribution of laundry appliances and defense products. Hurley will return to Whirlpool after eight years as supervisor of home laundry equipment for Sears, Roebuck & Co. He had been in charge of Whirlpool's sales before World War II.

SHANDS LEAVES ROPER TO HEAD FLORIDA FIRM

E. H. Shands, formerly director of engineering and development for

Geo. D. Roper Corp., Rockford, Ill., resigned his position recently to assume ownership of Florida Tile Industries, Inc., which in the future will be known as Ceramic Tile of Florida, Inc., with plant located at 608 Prospect Road, Lakeland, Fla. The company will be engaged in the manufacture of floor and wall tile.

ERIE ENAMELING UPS TWO

The Erie Enameling Co., Erie, Pa., has announced the promotions of John S. Marutiak as general superintendent of plant operations, and Herbert R. Spencer, Jr., as assistant treasurer.

Marutiak, who joined the firm in 1947, will continue his duties as purchasing agent and production control manager. Spencer joined the firm in 1951 as an accountant.

NEMES HEADS SALES FOR ADMIRAL AIR CONDITIONING

Ted Nemes has been named sales manager for the newly-created air conditioning division of Admiral Corp., it was announced by W. C. Johnson, vice president-sales. Nemes joined Admiral from Crosley Division of Avco. He formerly was with Fedders-Quigan Corp. and York Air Conditioning Corp.

AFFILIATED GAS ACQUIRES TORONTO HARDWARE MFG.

Acquisition of Toronto Hardware Mfg. Co. Ltd., Toronto, Canada, by Affiliated Gas Equipment, Inc., Cleveland, was announced by Lyle C. Harvey, president of the latter.

Affiliated Gas manufactures and sells heating, water heating and air conditioning equipment which are sold under the trade names of Bryant, Day & Night and Payne.

Harvey stated that "plans are currently underway to expand the new Canadian unit's operations in both gas and oil heating equipment."

NORGE ADDS NEW LINES OF HEATING, COOLING EQUIPMENT

Three new lines of domestic heating and cooling equipment were disclosed by the Norge Heat Division of Borg-Warner Corp. at the International Heating and Ventilating Exposition held in late January in Chicago.

Displayed in Norge Heat's 60-foot exhibit was the company's new "Airline" equipment, consisting of oil and gas warm air furnaces, conversion burners, window-type air conditioners, and central air cooling and dehumidifying units. Also on exhibit were their new "Hydraline" wet heating systems, comprising oil and gas-

fired steel and cast iron boiler equipment, and also gas-fired water heaters.

ANNOUNCE 2ND QUARTER STEEL, COPPER, ALUMINUM ALLOTMENTS

Steel, copper and aluminum allotments for second-quarter 1953 production of civilian-type items were announced by H. B. McCoy, acting administrator of the National Production Authority.

Carbon steel allotments are set at 90% of base period use, with alloy steel programmed at 100% of stated requirements. Copper and aluminum maintain their first quarter level of 50 and 55% respectively of base period consumption.

In announcing the allotments, McCoy pointed out that the steel levels are substantially higher than the 70% originally considered possible within the materials previously allotted and announced late in December.

Over 60 years with Magic Chef — *is employment record of George A. Geske who recently retired. He is shown receiving an engraved watch from Arthur Stockstrom, right, company president, at a recent dinner meeting of executive and factory management personnel. At left is George P. Eichelsbach, Jr., vice president in charge of manufacturing. Geske started with the firm on March 12, 1892.*

MORE COOLERATOR EXPANSION

Construction of a $1,000,000 warehouse facility connected to Plant No. 1 of The Coolerator Company, in West Duluth, Minn., was announced by G. L. Rees, president.

In addition to providing warehouse space, the building will house manufacturing offices. Loading docks accommodating more than a dozen cars and weather-tight doors at both ends will be features of the new facility. Additional land will adjoin the new building to provide for pos-

NAGEL-CHASE V-BELT PULLEYS

for AUTOMATIC WASHERS and DRYERS

For a better pulley that offers production economy as well, specify Nagel-Chase V Belt Pulleys for your automatic washers and dryers.

Made by specialists in pulley and caster manufacture, they are precision-built from welded pressed steel for long trouble free service with minimum belt wear. The solid steel hub is designed so that the pulley cannot come loose.

Nagel-Chase V-Belt Pulleys are made in several styles, with or without bushings and as stepdown pulleys with the smaller pulley turned into the hub or integral with the larger. They may be supplied unfinished or with a long lasting aluminum lacquer finish.

Whatever your pulley requirements — consult Nagel-Chase first — it will pay you!

THE NAGEL • CHASE MANUFACTURING COMPANY
2811 N. Ashland Avenue, Chicago 13, Ill.
SPECIALISTS IN CASTERS AND PULLEYS FOR NEARLY A QUARTER CENTURY!

ALSO MANUFACTURERS OF NAGEL-CHASE WASHING MACHINE CASTERS

sible plant expansion in the future.

The construction is part of an extended expansion program Coolerator has been conducting for the last 18 months.

DANA CHASE JR. RETURNS TO FINISH FOLLOWING SERVICE IN KOREA

Finish is pleased to announce the return of Dana Chase, Jr., to his posi-

tion as manager of customer service. He left this position with *finish* as a Reserve Officer (2nd Lt.—Infantry) to enter active service in early 1951. "Doc" Chase spent several months at Ft. Riley, Kansas, as an instructor in Small Arms. He then attended Officers' School at Ft. Benning, Ga., for advanced infantry training.

Since the spring of '52, Lt. Chase has been serving with the 25th Division, oldest Division in Korea in point of service. He saw action at Heartbreak Ridge and in the Punchbowl area, and advanced to 1st Lieutenancy while in service there.

According to the Lieutenant, his bed in Elmhurst is somewhat softer than the bunkers, and he feels that contacts with customers may be somewhat more friendly than those he encountered as a Patrol Leader on night patrols in Korea.

REMINGTON ENGR. DIRECTOR

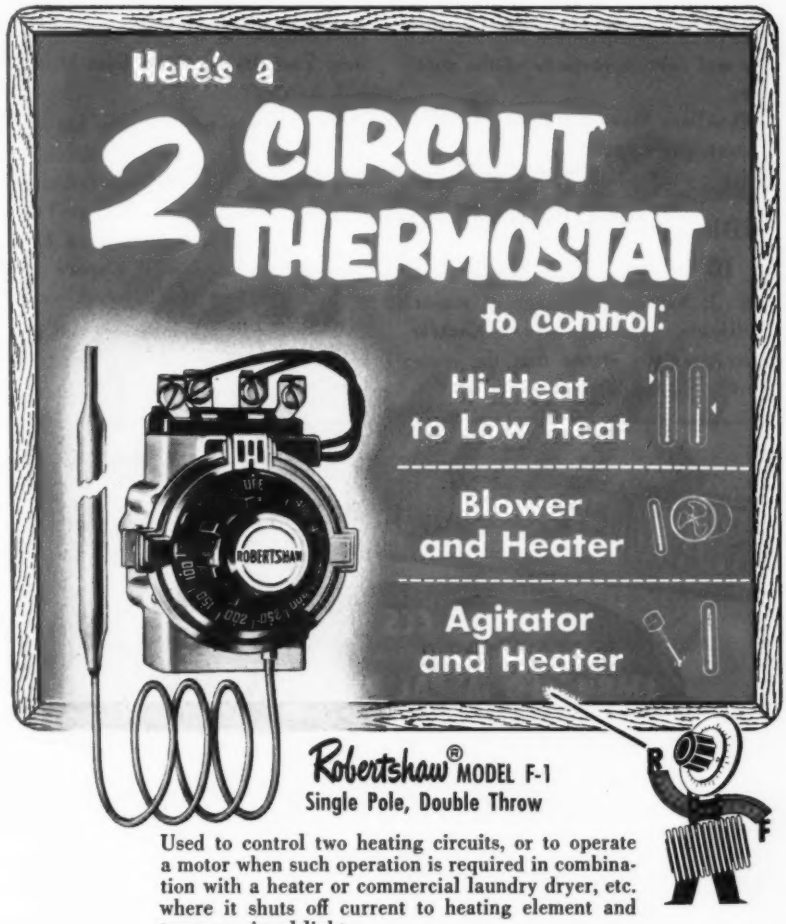
Appointment of Walter Schmidt as director of engineering for the air conditioning division of Remington Corp., Auburn, N.Y., was announced by Herbert L. Laube, president. Prior to joining Remington, Schmidt was chief engineer of Koch Refrigerators, Inc. Ralph Ackart continues as chief engineer of Remington.

DOYLE RESIGNS FROM DUCHESS

The resignation of R. F. Doyle, executive vice president and general manager of The Duchess Co., Alliance, Ohio, was reported recently. At the same time it was revealed that Dean L. Elliott, secretary and treasurer, will become works manager. Elliott has been with the company since it was started in 1937. Doyle joined the organization in 1950.

MCCRAY MAKING HOME FREEZERS

McCray Refrigerator Co., Inc., Kendallville, Ind., has entered the home freezer field with an upright "Twin-Door" model which has a 20 cubic foot capacity, and holds up to 725 pounds of frozen food.



Used to control two heating circuits, or to operate a motor when such operation is required in combination with a heater or commercial laundry dryer, etc. where it shuts off current to heating element and turns on signal light.

When thermostat calls for heat, high heat element automatically cuts in and holds until set temperature is reached. Main contacts are then broken automatically and low, or holding, element is cut in to function until drop in temperature again calls for heat. Maximum temperature range 550°F. Write for full information.

Robertshaw
THERMOSTAT DIVISION
ROBERTSHAW-FULTON CONTROLS COMPANY, YOUNGWOOD, PENNSYLVANIA

BROOKER TO SEEGER BOARD

R. E. Brooker, vice president of Sears, Roebuck & Co., has been elected to the board of Seeger Refrigerator Co., succeeding J. J. Leonard, a retired vice president, who resigned as a director.

DEARBORN STOVE BOUGHT BY DALLAS INVESTORS

The sales of Dearborn Stove Co. to a group of Dallas, Texas, investors was recently reported. At the same time, it was indicated that plans are underway for expanding manufacturing and sales operations of the company.

Dearborn Stove produces gas space heaters, gas water heaters, and evaporative room coolers.

WESTINGHOUSE PLANNING TO PRODUCE WASHER-DRYER

R. J. Sargent, manager of major appliances, Westinghouse Electric Corp., recently stated that the company is planning to introduce a combination washer-dryer within 18 months.

He also predicted that sales of Westinghouse appliances in 1953 will reach a new high. He noted that the appliance division's capacity will be doubled when their new plant in Columbus, Ohio, is opened in October.

BOB WESTON HEADS EASTERN SALES FOR FINISH

Bob Weston has been appointed Eastern representative for *finish*. His address is 6 East 39th Street, New York 16, N. Y. Phone: Murray Hill 5-9450.

Previous to establishing his own business as space representative, he was account executive for Columbia Broadcasting System in New York. Prior to his connection with CBS, he was associated with a space representative firm for several years.

Weston will handle sales and customer service for *finish* in the territory east of the Pittsburgh area.

FRIGIDAIRE PLANNING FIRM'S LARGEST ADVERTISING PROGRAM

Frigidaire Division of General Motors and its dealers will launch the largest appliance advertising program in company history, F. H. Peters, appliance advertising manager, told 300 members of Frigidaire's national distributing organization at a meeting in Dayton, Ohio.

"The Frigidaire appliance sales story will be told to families across the nation at a rate of over 10,000 advertising messages every minute of every hour — 24 hours a day — throughout the remainder of the year," Peters said.

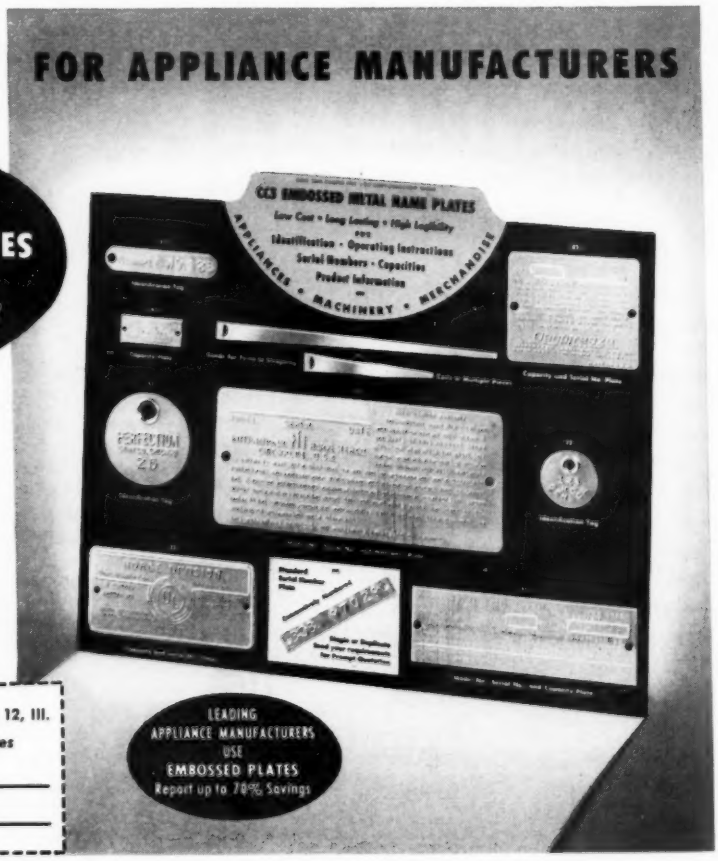
ADMIRAL HAS $20,000,000 ADVERTISING BUDGET

Admiral Corporation's 1953 advertising budget totals $20,000,000, largest in company history, it was announced by Seymour Mintz, vice president-advertising.

SAMPLE FILE

SHOWS CCS
MANY TYPES • SIZES • SHAPES
EMBOSSED METAL PLATES
WITH THESE ADVANTAGES:
Appearance • Legibility
Lower Cost

FOR APPLIANCE MANUFACTURERS


CCS EMBOSSED METAL NAME PLATES
APPLIANCES • MACHINERY • MERCHANDISE
LEADING APPLIANCE MANUFACTURERS USE EMBOSSED PLATES
Report up to 70% Savings

Investigate Embossed Plates

Send for CCS Sample File showing how Embossed Metal Plates are used by the Industry for Identification-Operating Instructions • Capacities • Consecutive Serial Numbers . . . any use where permanence, legibility, appearance and economy are important. Or, send your present plate for quotation, stating quantities, copy, and size. Initial orders: 10 to 15 days after completion of tooling. Repeat orders: Scheduled for 24 hour delivery.

CHICAGO CAR SEAL COMPANY
Embossed Metal Plate Division • 634 N. Western Ave., Chicago 12, Ill.
Send sample file showing CCS Embossed Metal Plates
FIRM NAME
INDIVIDUAL DEPT.
attach to your letterhead and mail

EATON NAMES ASST. GEN. MGR.

W. A. Mattie has been appointed assistant general manager of the heater division of Eaton Manufacturing Co., Cleveland, Ohio.

LAMB HEADS INTER-PLANT COORDINATION FOR TAPPAN

Robert M. Lamb, manager of the Murray Manufacturing Co. plant of

The Tappan Stove Co., has been promoted to vice president in charge of inter-plant coordination of Tappan's three factories.

GAS HEATING SHIPMENTS RECORD STRONG INCREASE

Gas-operated central heating equipment wound up 1952 with sizable gains in unit shipments over 1951, according to the Gas Appliance Manufacturers Association.

Shipments of gas-fired furnaces reached a total of 456,400 for the year, a 17% gain over 1951's 390,000 total, while the 1952 total of gas-fired boiler shipments — 68,600 — was 13.4% over the 60,500 units shipped during the preceding year.

Most striking gain was in the shipment of gas conversion burners, reported Edward R. Martin, GAMA director of marketing and research. Unit shipments jumped from 164,000 in 1951 to 212,000 during 1952, a 29.3% increase.

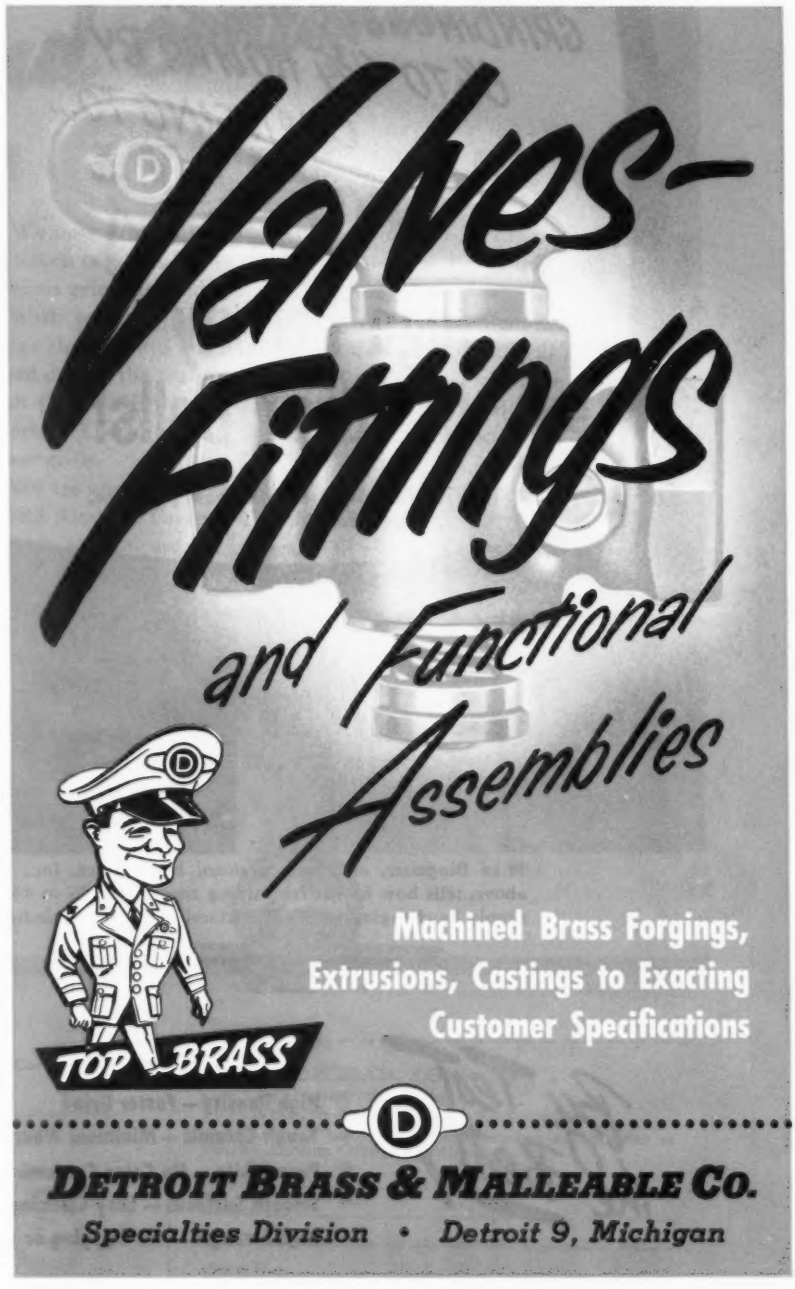
Increasing heavy shipments of gas-fired furnaces, boilers and conversion burners during the last six months of 1952 were responsible for overcoming comparative losses during the first half of the year.

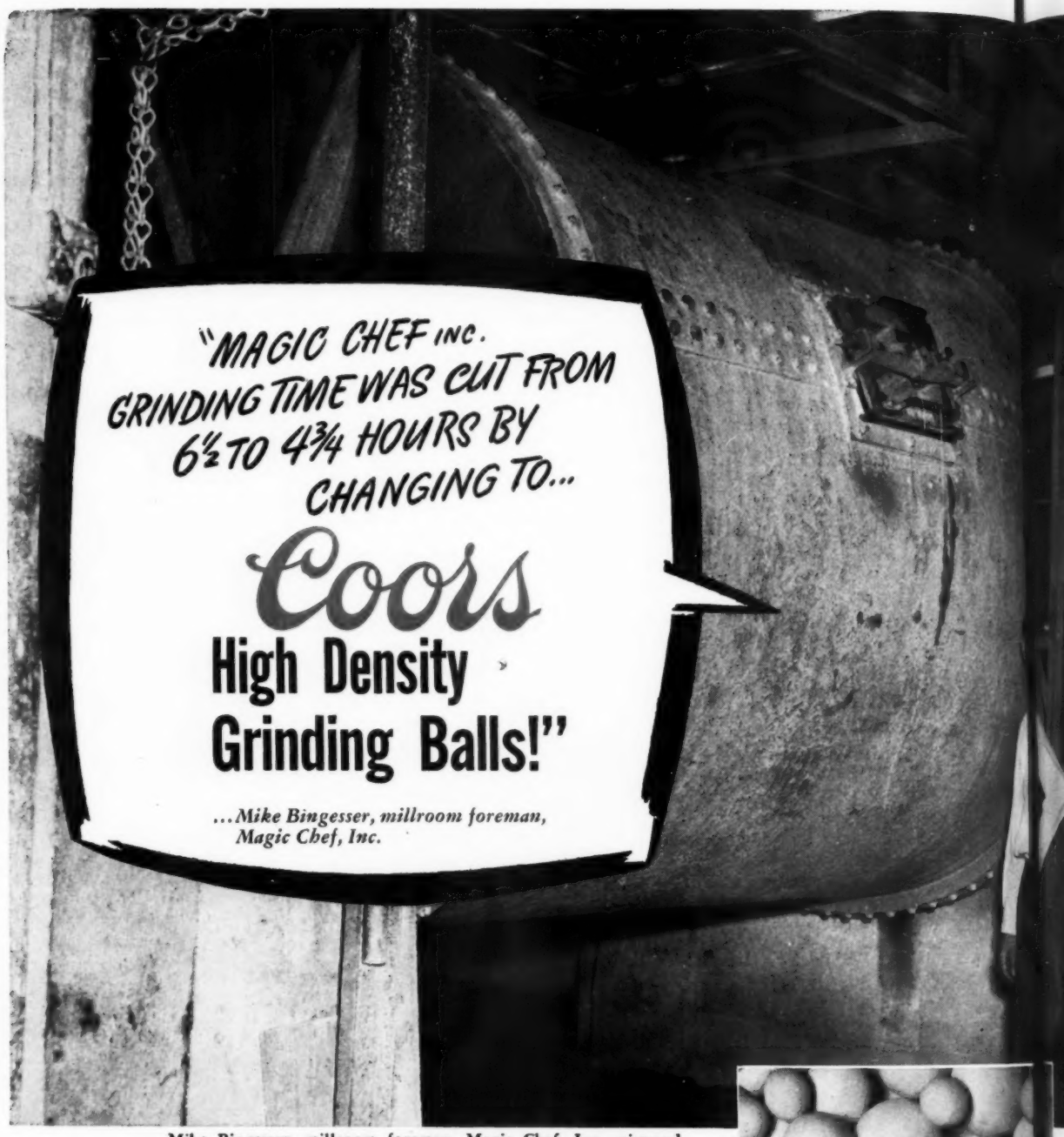
RASCH FIRM TO EXPAND GAS APPLIANCE LINE

Rasch Manufacturing Corp., Kansas City, Missouri, recently acquired certain assets of Security Manufacturing Division of The Kemper Investment Company, and has announced plans for production of gas-fired appliances.

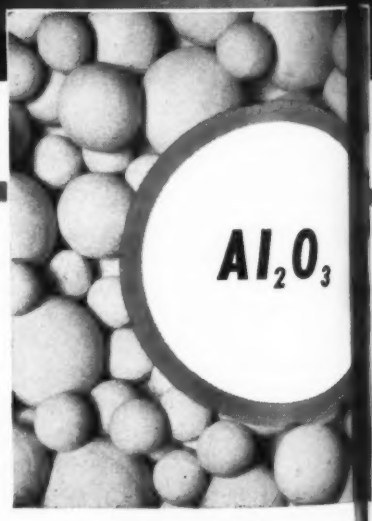
The new company has acquired the trade mark "Security", and will manufacture and sell water heaters, floor furnaces, conversion burners and other appliances.

Officers of the new company include: William T. Rasch, president; Lee W. Rasch, vice president and treasurer; and Fred Bellemere, Sr., secretary and general counsel. Wm. Rasch was formerly president, and Lee Rasch was vice president, of Security Mfg.





Mike Bingesser, millroom foreman, Magic Chef, Inc., pictured above, tells how he cut frit milling time from 6½ to 4¾ hours, simply by changing to COORS Alumina Ceramic Grinding Balls.



By Test the Best!

- **High Density — Faster Grind**
- **Tough Ceramic — Minimum Wear**
- **Pure White — No Color Contamination**
- **Smooth Surfaces — Easy Cleaning**
- **High Strength — No Chipping or Cracking**

"Magic Chef" inc. cuts milltime and contamination ON EVERY BATCH!

"We now grind 3,400 pounds of frit down to 2 grams fineness on a 200 mesh screen in 4¾ hours with COORS Alumina Ceramic Grinding Balls. With previous grinding media it took 6½ hours.

"With previous grinding media, we added 30 pounds of 3" balls every charge that ran 6½ hours. This would have amounted to 7,500 pounds of balls used during the past nine months. Running the same size mill and frit batch with COORS balls, we have not added any balls during this nine months period. The COORS balls are as nice and round as the day we put them in our mills.

"We are operating a 100 pound mill and a 3,400 pound mill charged with COORS Alumina Ceramic Grinding Balls.

"Also, we now are using the COORS balls in a 6,000 pound mill. On the first load, we cut grinding time about 3 hours."

You, too, can cut milling time as Magic Chef, Inc., has done.

Write your COORS representative, today!

COORS PORCELAIN COMPANY
GOLDEN, COLORADO

CHEMICAL AND SCIENTIFIC PORCELAIN WARE — COORS U.S.A. — Internationally Recognized for Quality

National sales representatives . . . **LZP Industrial Ceramics**
2500 West 7th Ave., Denver 4, Colorado

Sole agent for the Enameling Industry . . . East of the Rocky Mountains,
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1427 South 55th Court, Cicero 50, Illinois

California Sales Representative . . . **Melvin L. Jontz Company,**
5028 Alhambra Ave., Los Angeles 32, California.

COORS PORCELAIN COMPANY
c/o LZP Industrial Ceramics
2500 West 7th Ave., Denver 4, Colorado

Please send price list, recommendations and samples of COORS Alumina Ceramic Grinding Balls.

*Name*_____ *Title*_____

*Company*_____

*Address*_____

*City & State*_____

PRESTO PLANS COFFEE MAKER

National Pressure Cooker Co., Eau Claire, Wis., manufacturers of Presto cookers, is planning to introduce a coffee maker to its lines during 1953. It was also revealed that, subject to stockholder approval, the company will change its name to National Presto Industries, Inc.

LUBRICATION ENGRS. MEETING

"Lubrication Engineering and Increased Plant Efficiency" is the theme of the 8th annual meeting of the American Society of Lubrication Engineers to be held April 13-15, at Hotel Statler, Boston, Mass.

THOR PRODUCES MILLIONTH 105 MM SHELL FOR ARMY

Less than a year and a half after entering production, the Meadows Division of Thor Corporation produced its one millionth millimeter shell for the U. S. Army. Military, civic and Thor officials participated in special ceremonies on February 10 which marked the occasion in Thor's plant in Bloomington, Illinois.

PRESSED METAL INSTITUTE TECHNICAL SESSION

Carter Hotel — Cleveland, Ohio

March 25 — *Morning* — "Safety at the Press" — Panel and Exhibit.
Afternoon — "Building Safety into Dies" — Panel headed by J. I. Karash, of Reliance Electric Co.

March 26 — *Morning* — "The Right Press for the Right Job" — Panel discussion by press manufacturers and users.
Afternoon — "Drilling, Tapping and Counterboring in a Stamping Plant" — Panel and Exhibit.

March 27 — *Morning* — "Work Simplification in a Stamping Plant" — presented by Allan H. Mogensen.
Afternoon — "Die Breakage and How to Minimize It" — Panel discussion.

WELDING EXPOSITION IN TEXAS

An all-welding exposition sponsored by the American Welding Society will be held June 16-19 at the Shamrock Hotel, Houston, Texas, in conjunction with the AWS spring technical meeting. More than 40 suppliers of welding equipment have already reserved space for the exposition.

HAY HEADS CHICAGO PLATERS

Lawrence J. Hay, president of Plating Service Co., has been elected chairman of the Chicago Electro-Platers Institute, succeeding Carl F. Hansen, of Advance Tinning Co.

Have YOU Tried W-A1 METAL CLEANER

for immersion cleaning prior to porcelain enameling? It's a specification material that has proved its worth in many enameling plants.

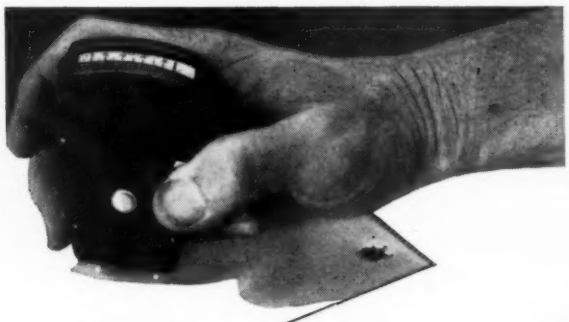
Same Quality and Same Price for over 4 years

EPCO

MANUFACTURERS OF LEPCO PRODUCTS

V. B. PUNDERSON COMPANY

402 SWETLAND BUILDING CLEVELAND 15, OHIO



How thick is the coating?

Check with an ELCOMETER . . . new type thickness gauge for spot checks on non-magnetic coatings: porcelain enamel • paints • platings • foils • glass • paper • plastics • etc.

Accurate to ± 5% ± .0001".

For flat or curved surfaces in hard-to-get-at spots without loss of accuracy. Needle locking device assures a correct reading every time.

Comes with tough, leather case containing inner pocket for test strips.

Retail price ("A" Scale) $55.00 F. O. B. Cleveland, Ohio. Special scales available. Write for illustrated folder.

FERRO

FERRO CORPORATION
4156 E. 56TH STREET
CLEVELAND 5, OHIO

AMERICAN CHEMICAL PAINT COMPANY

AMBLER CHEMICALS ACP PROCESSES PENNA.

Technical Service Data Sheet

Subject: HOW *GRANODIZING* PROTECTS STEEL DRUM SURFACES FROM RUST AND IMPROVES PAINT ADHESION

NEW DEVELOPMENT IN CONTAINER INDUSTRY

United States Steel Products Division, United States Steel Company is now producing grease-free, scale-free, rust-inhibited steel drums. A chemically clean metal surface plus a "Granodine"* non-metallic zinc phosphate coating insures maximum finish durability and underpaint rust-resistance. *Trade Mark Reg. U.S. Pat. Off.

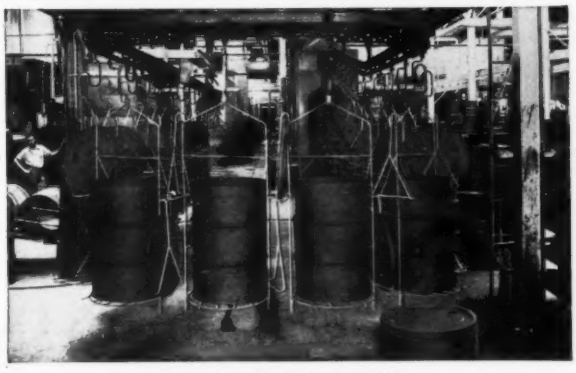
ORDINARY PAINTED DRUM after a year of exposure to weather is badly rusted. Rust was very apparent after only one week.

U. S. S. RUST-INHIBITED DRUM of similar type shows absolutely no rust after same year's test.

THE PROTECTIVE CHEMICAL TREATMENTS

The Granodizing process embodies the following steps:

1. Grease and dirt removal
2. Full scale removal, after welding the side seam
3. Zinc phosphate coating with "Granodine"
4. Acidulated rinsing in "Deoxylyte" solution



Port Arthur, Texas, Cleaning Line

U. S. S. drums about to enter the 400 foot cleaning and treating line. Powerful impingement sprays directed at the fabricated shell, head, and bottom, insure that the entire interior and exterior of the drum will receive full cleaning and rust-inhibiting treatment.

ADVANTAGES OF GRANODIZED STEEL DRUMS

These new phosphate-coated steel drums exhibit many advantages for companies using these containers.

They are chemically clean, "water-break free" inside, free of contaminating residues such as grease, oil, drawing and stamping compounds. When the familiar handkerchief test is applied to United States Steel Products' containers processed by their new finishing technique, no contamination of any kind is left on the cloth.

They are free of mill-scale. United States Steel Products is the first steel drum manufacturer to remove harmful mill scale completely ahead of the zinc phosphate coating stage.

They are rust-inhibited with a zinc phosphate-coating. These new steel drums have the added advantage of a non-metallic, paint-bonding "Granodine" zinc phosphate coating. This has been standard practice for many years in the automotive and appliance industries for long-lasting paint protection and metal preservation.

CHEMICALS ACP PROCESSES

WRITE FOR INFORMATION ON "GRANODINE" AND ON YOUR OWN METAL PROTECTION PROBLEMS

CHEMICALS ACP PROCESSES

VIKING ADDS ROOM COOLERS

Viking Refrigerators, Inc., Kansas City, manufacturer of commercial refrigeration equipment since 1908, is reported to have entered the home air conditioning field.

CARRIER NAMES ASST. TO PRES.

Appointment of William C. Egan, district dealer manager in Cleveland, as assistant to the president of Carrier Corporation, Syracuse, N.Y., was announced by Cloud Wampler, president. Egan joined the Carrier organization in 1942, following several years in investment banking.

MIDWEST ENAMELERS TO DISCUSS HIGH TEMP. COATINGS, MARCH 14

At the March 14 meeting of the Midwest Enamelers Club, at the La-Salle Hotel, Chicago, D. M. Meeker, of Toledo Porcelain Enamel Products Co., will discuss "High Temperature Ceramic Coatings." Also on the program will be a 16 mm color-sound film entitled "Master of Fire—Servant of Industry", presented by A. P. Green Fire Brick Co.

TINNERMAN NAMES FLORA ENGINEERING DIRECTOR

Appointment of Lawrence H. Flora as director of engineering for Tinnerman Products, Inc., was announced by A. H. Tinnerman, president.

Flora's new position was created as part of a program to further expand new product development facilities. He joined Tinnerman in 1942 and served as head of the development department until 1949, when he was appointed chief engineer.

CHICAGO VIT PROMOTES JOHNSON, MC LAUGHLIN

A. S. Ault, vice president-sales, Chicago Vitreous Enamel Product Co., has announced the promotion of Lee Johnson to assistant manager of service, a position formerly held by John McLaughlin, who will now devote his full time to special projects.

Johnson joined Chicago Vit in 1937 as a chemist, and worked primarily on raw materials and frit analyses. He was later transferred to the ceramic laboratory to work on research and development of new frits. In 1949, he was promoted to the sales and service organization as a service engineer.

McLaughlin became associated with Chicago Vit in 1937, following graduation from North Carolina State College. He spent several years in the research laboratory and then went to Baltimore Enamel & Novelty Co. After almost five years of military service, he rejoined Chicago Vit as a member of the research division. He was transferred to the service staff in 1947, and in April, 1950, became assistant manager of service. Recently he has concentrated on special development projects, such as the enameling of television cones.

NEW KERNS SALES V.P.

The board of directors of The L. R. Kerns Co., Chicago, have appointed B. W. Glenn as vice president-sales.

painting?

See what Ransburg can do for you

Our electrostatic coating processes may provide you with increased production and higher quality finish at a fraction of your present painting cost . . .

- RANSBURG NO. 1 ELECTRO-SPRAY
- RANSBURG NO. 2 ELECTRO-SPRAY
- RANSBURG ELECTROSTATIC DETEARING

If your production volume justifies conveyorized painting, we invite your inquiry to permit evaluation of the savings which can be yours with one of these processes. Write or call for information.

Electrostatic Painting Processes

RANSBURG ELECTRO-COATING CORP.
Indianapolis 7, Indiana
RANSBURG

sate transit

Gaylord Boxes Are Protection in Action

Extra protection is a profitable investment that pays real dividends in reduced damage claims, and reduced packaging time.

Through every channel of distribution—from factory to warehouse to retailer, by train, truck or plane—Gaylord quality control and scientifically engineered design assures shipping containers that provide safe delivery of your product.

Gaylord's Research and Engineering Division is at your service. Check with sales office nearest you for latest developments in packaging for your industry.

Gaylord Boxes

Their unseen quality gives you an extra margin of safety.

GAYLORD CONTAINER CORPORATION

General Offices: ST. LOUIS • *Branches:* New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Indianapolis • Los Angeles Seattle • Houston • Oakland • Minneapolis • Detroit • Columbus • Fort Worth • Tampa • Dallas • St. Louis • Cincinnati • Des Moines Oklahoma City • Portland • Greenville • San Antonio • Memphis • Kansas City • Bogalusa • Chattanooga • Milwaukee • Weslaco • New Haven Amarillo • Appleton • Hickory • Sumter • Greensboro • Jackson • Miami • Omaha • Mobile • Philadelphia • Little Rock • Charlotte • Cleveland

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and metal products manufacturing field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

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(On Page ST-5 is shown the cover for the National Safe Transit Committee's newest booklet.)

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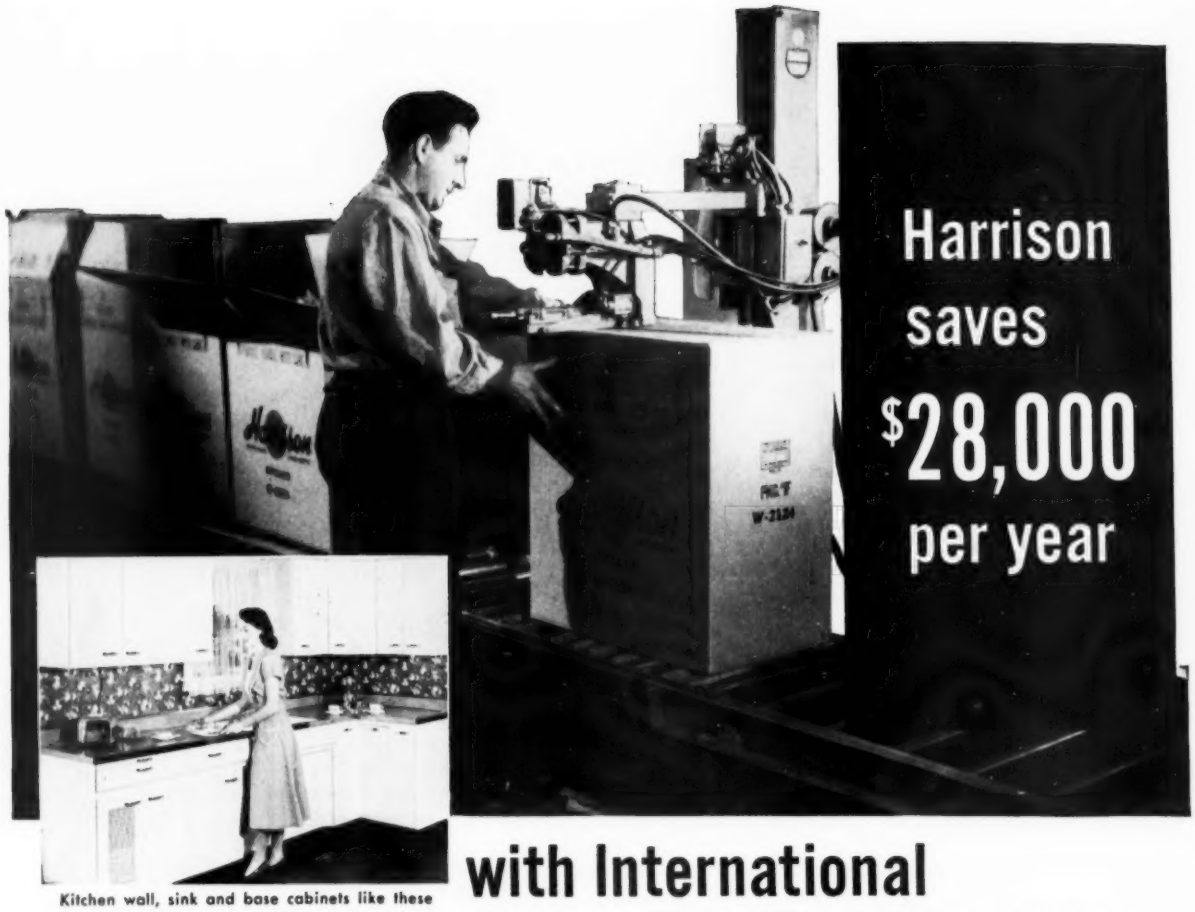
DANA CHASE PUBLICATIONS
360 N. Michigan Ave.
Chicago 1, Illinois
PRINTED IN U.S.A.

G-E television cabinets — *reach the assembly and packaging station in the plant of Doehler Metal Furniture Co., in Plainfield, Conn. Here the fronts are joined to the cabinet bodies, and the finished unit is packaged for shipment. A final inspection is made of the assembled cabinets as they move by roller conveyor to the packing station. Note the use of interior packaging and cushioning as finish protection.*

First carload of appliances — *from General Electric Co.'s Appliance Park, in Louisville — went to market on February 6. James H. Goss, left, general manager of home laundry equipment department, and Herbert A. Warren, major appliance division manager of distribution, close the door on the carload of automatic clothes dryers. The shipment marked another milestone in the development of Appliance Park, where construction was started in the summer of 1951, and which, when completed, will be one of the world's largest appliance manufacturing centers.*



Kitchen wall, sink and base cabinets like these are shipped in corrugated cartons closed by International Staplers.

with International Carton Stapling Machines

$28,000 saved in a year . . . $112,000 in the last four years! Unbelievable? Chester C. Cain, executive vice president of Harrison Steel Cabinet Co., Chicago, found it hard to believe, too. But read what he has to say:

"Four years ago we installed two International Retractable Anvil Stapling Machines to close corrugated shipping cartons for our line of kitchen wall cabinets, sink cabinets and base cabinets. We staple the tops and bottoms simultaneously after the cabinets are in the cartons. The machines . . . one for regular production . . . one for overflow production . . . cost $1,640 each.

"A year later, figures showed our packaging costs had gone down $28,000. Working conditions were easier for our men . . . and the equipment had paid for itself in only a month and a half.

"Formerly, we packaged about 300 units each 8-hour day, using 13 or 14 men to set up boxes, seal the bottoms, place cabinets inside, and seal the tops.

"Now with only 6 men . . . one to operate the stapler, and the rest to pack and feed, we're closing 600 cartons each 8-hour day . . . twice as many, and the closures are better."

If you ship in corrugated or fibre containers, an International Retractable Anvil Stapling Machine can close them better, faster and more economically. Write for detailed information.

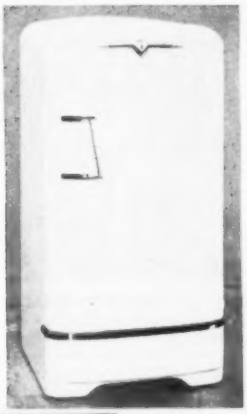
a seal of security

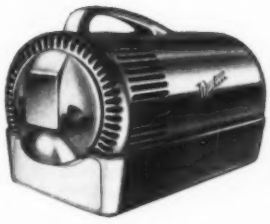
INTERNATIONAL STAPLING MACHINES

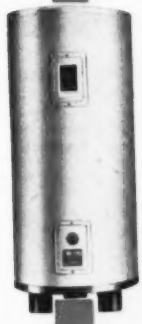
International Staple & Machine Company
800 East Herrin Street, Herrin, Illinois

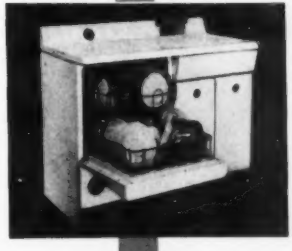
The National SAFE TRANSIT Program

designed to deliver the finished product safely
from the assembly line to the final customer









Acme Steel Strapping Insures S.A. *(Safe Arrival)*

and eliminates Crating Department bottleneck for Hotpoint!

"BEFORE" HOTPOINT RANGE PRODUCTION LINE STALLED. Hotpoint workers found the hand stretcher method (shown above) too awkward in fastening corrugated board for shipping protection to new ranges as they poured off the production line. The line kept backing up.

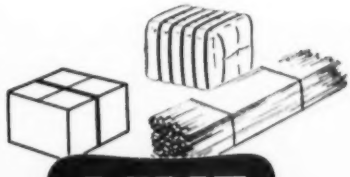
"NOW" ACME STEEL PNEUMATIC STRETCHER ELIMINATES BOTTLENECK, CUTS COSTS! The same workers now tension pre-cut Acme Steel strapping with an Acme Steel pneumatic stretcher. Shipping preparation costs have been held as much as 20 per cent below normal industry shipping costs. One operator says, "A man couldn't last all day before—too hard on the arms. Now with the Acme Steel system it's easy to keep ahead of production."

There it is. A clear cut case of how Acme Steel and know-how in steel strapping has helped a leading manufacturer solve a critical problem.

Chances are that many of your own production assembly or packing and loading problems can be cleared up with Acme Steel strapping, the best way to protect your product in shipment.

You will also learn that Acme Steel strapping, and the Acme Steel tools that work with it, will save materials and pay for themselves in a short time. Employees are happier because they know increased production means more, steadier jobs.

There are dozens of cases in the files to prove that nearly everything made to eat, wear, sit on or live in can be assembled and packed swiftly and will arrive safely with Acme Steel strapping. For specific examples, write to Acme Steel Products Division, Dept. F-33.



ACME STEEL

ACME STEEL COMPANY

2807 ARCHER AVENUE, CHICAGO 8, ILL.

ST-6

WOULD YOU SHIP YOUR PRODUCT IN A MISFIT CONTAINER?

The wrong size of hat may look funny, but the wrong shipping container is no laughing matter. More often than not, it is the cause of excessive shipping losses, damage claims and transportation charges.

SUPERSTRONG laboratories are maintained for the design of perfectly balanced boxes and crates that will enable a product such as yours to be shipped safely, compactly and economically.

Nearly a century of experience and dependability recommends SUPERSTRONG as a source of known quality for your shipping container requirements.

WIREBOUND BOXES and CRATES
WOODEN BOXES and CRATES
CORRUGATED FIBRE BOXES
BEVERAGE CASES
STARCH TRAYS · · · PALLETS

SHIPPING TRADE MARK SUPERSTRONG CONTAINERS
REG. U.S. PAT. OFF.

RATHBORNE, HAIR and RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

Packaging and handling Republic Steel Kitchen

the final production phase of Republic's "ore to store" project at Berger Mfg. Division

THIS photo spread shows the final operations in Republic Steel Corporation's "ore to store" steel kitchen operation — the first in the history of the steel kitchen industry.

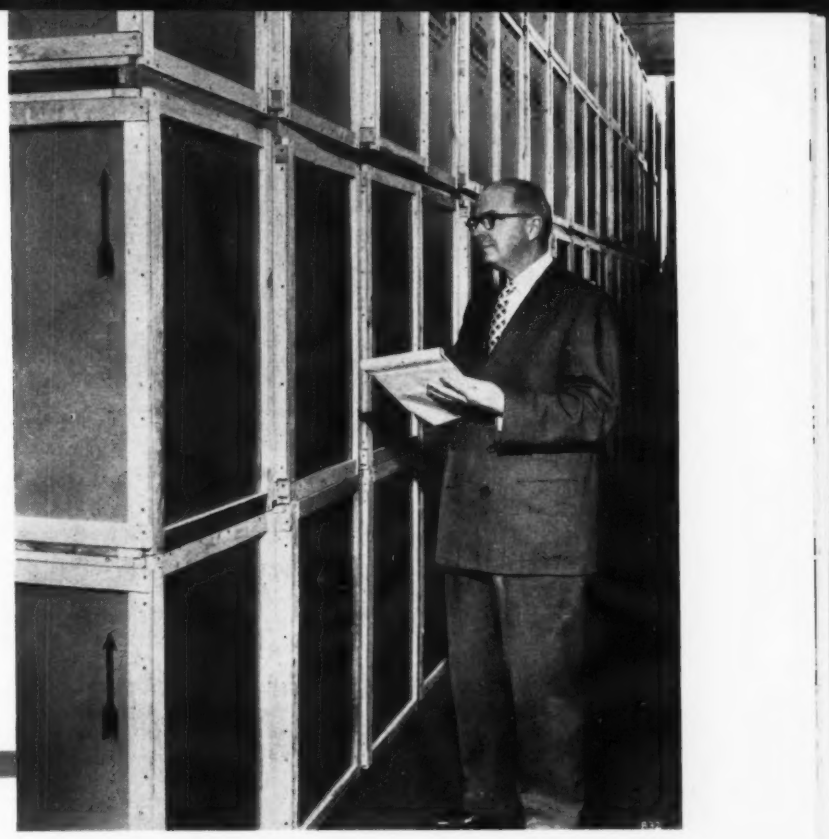
From the mining of the raw materials that go into the steel — through fabrication, finishing, packaging and preparation for shipment — these kitchens are a 100 per cent product of Republic Steel.

The kitchens are produced at the Berger Manufacturing Division Plant No. 2, in Canton, Ohio, where the company recently spent $1,000,000 for retooling.

The Berger division had years of specialized experience in kitchen cabinet design and manufacture for others, before the company decided to produce kitchens under its own trade name.

Individual cartons and cases — *are prepared for each of the dozens of types of units which comprise the new Republic Steel Kitchens line. The cases are used primarily for undersink cabinets, which are packaged on slat-type powered conveyors.*

Twelve box cars — *may be loaded simultaneously from the outside loading platform at the rear of the Berger Manufacturing Division Plant No. 2, in Canton, Ohio. In addition to shipment of kitchen units by rail, they are also shipped by truck.*



Sales operations—*are closely geared to production operations at the Berger plant. Ray W. Helms, general manager of sales at Berger, is shown making one of his frequent checks on production and inventories.*

Fork lift trucks—*are used to stack packaged kitchen units. Although a good portion of the plant is devoted to warehousing packaged kitchen cabinets, the plant would overflow in a day if the bulk of the production were not shipped out immediately for storage in company and distributor warehouses while on the way to the consumer.*

These well-known members of the National Safe Transit Association find "Scotch" Brand Filament Tape both strong and *resilient*—ideal for heavy-duty banding, bundling and sealing.

They find it *strong* because as many as 10,000 continuous rayon or glass filaments reinforce every inch of width, give up to 5 times the tensile strength, 50 times the tear-resistance of most industrial tapes now on the market.

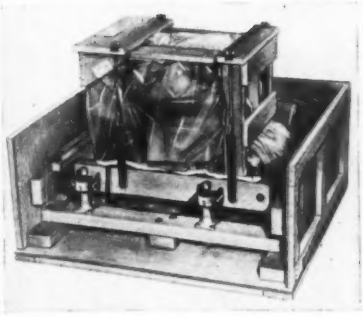
They find it *resilient* because these cable-strong filaments are embedded in an elastic, pressure-sensitive adhesive that sticks tight to the job, absorbs jolts and jars again and again.

No wonder "Scotch" Brand Filament Tape is such a strapping success! No razor-sharp edges to injure handlers. No "catching" and tearing during loading. No difficult disposal problem.

It's available in many widths and colors for shipment identification. Try "Scotch" Brand Filament Tape today!

REG. U.S. PAT. OFF.
SCOTCH
BRAND
FILAMENT
TAPES

The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N.Y. In Canada: London, Ont., Can.



Protecting office machines during shipment

describing the use of specially-designed rubber mountings and other cushioning materials to combat damaging shocks encountered during transit

MANUFACTURERS of delicate instruments, office machines, appliances, sensitive components for electronic equipment, defense products, etc., all have the common problem of protecting their products against damaging shock encountered during transit.

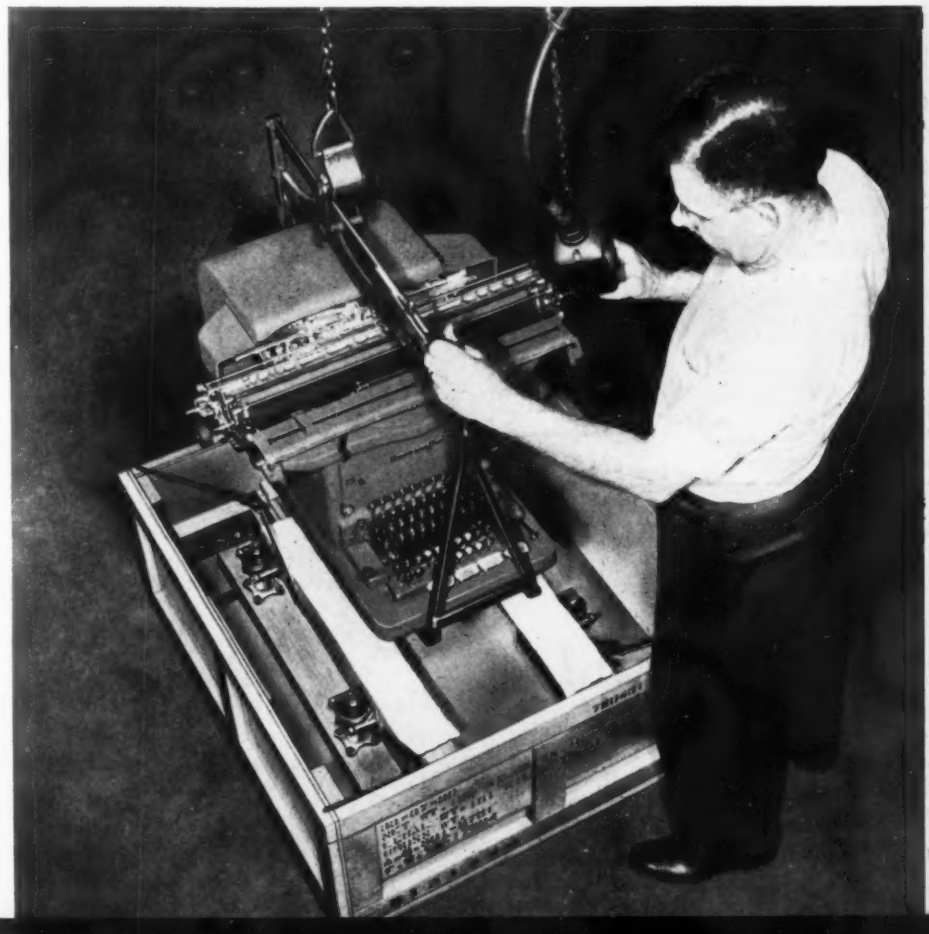
Various types of cushioning materials are employed by different manufacturers for protecting their valuable finished products. These materials range from creped wadding, glass fiber materials, cotton blankets, hair felt and wood fiber felt to rubberized fiber, rubber mountings, and even popcorn.

Burroughs Adding Machine Co. of Detroit, for instance, uses both creped cellulose wadding and flexible rubber mountings. Burroughs is said to have used the first commercial application utilizing flexible rubber mounts specifically designed to supply the proper amount of resiliency in all planes for maximum protection.

To give some conception of the value of engineered protection with cushioning materials, a Burroughs typewriter and accounting machine was dropped over 36 inches in its shipping container. There was not only a total absence of breakage, but the working parts were not even thrown out of adjustment.

In another case, a large producer of business machines, was able to reduce the gross shipping weight on one of their accounting machines by 80 pounds through the use of rubber mountings. In addition to providing maximum shipping protection, reductions in actual packaging costs up to 50 per cent were also reported.

Similar mounting systems, often used in conjunction with other types of cushioning materials, are being employed by the Armed Forces for protecting many types of sensitive components, one of the largest being radial aircraft engines.



Right: Lowering a Burroughs typewriter accounting machine into bottom half of shock-mounted shipping container. Machine will rest on a cushion of creped wadding material. After machine is attached to sub-base, the upper half of the case is placed in position, and the two halves are attached by means of metal straps and lag screws.

Above: Business machine is shown attached to sub-base which is supported by four bonded-rubber shipping mounts. Note that machine also has a protective transparent covering.

Source for further information on rubber shipping mounts may be obtained by writing to *finish*.

These leading manufacturers are certified for National Safe Transit

SERVEL

LUXRA

PEERLESS

Jordon REFRIGERATOR CO. INC.

EASY

ING-RICH

TAPPAN

LANDERS FRARY & CLARK

MILTON ROY CO.

Continental

Hotpoint

BELMONT STAMPING

SAMUEL STAMPING & ENAMELING COMPANY

SAMCO PRODUCTS

TEMCO Inc.

Kresky OIL BURNING EQUIPMENT

NEWARK STOVE

Florence RANGES AND HEATERS

CANADIAN GENERAL ELECTRIC

CRIBBEN AND SEXTO

DIN STOVE

Deepfreeze

Remington

DAVIS PRODUCTS

Mt. Vernon Furnace

O'KEEFE & MERRITT

MOORE Enamelin

Federal Enameling

Dixie

Caloric GAS RANGES FACTORIES TOPTON, PA.

BARROWS BP PORCELAIN

APEX ELECTRICAL MANUFACTURING COMPANY

U. S. STAMPING

SPEED QUEEN

NLON-MOORE

A.O. SMITH

BEAM MANUFACTURING COMPANY

MURRAY Corporation

CANTON STAMPING

Firestone Steel Products

Crunden Martin

FEDDERS-QUIGAN

FLOYD·WELLS

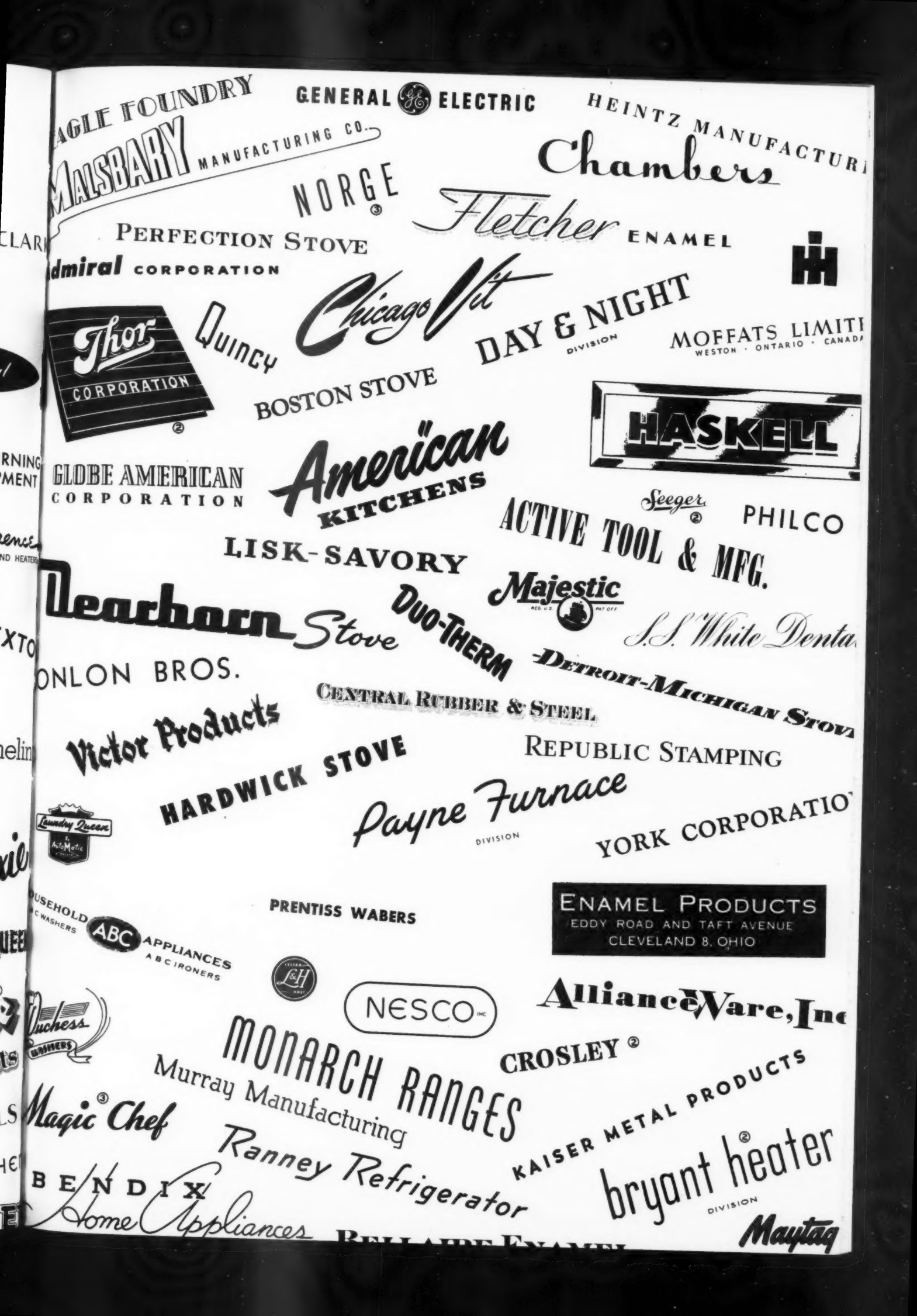
Luehne Manufacturing Co.

FRIGIDAIRE

Midwest MANUFACTURING

GENEVA MODERN KITCHE

McGRAY REFRIGERATOR

DEXTE

AGLE FOUNDRY
GENERAL ELECTRIC
HEINTZ MANUFACTURI
MALSBARY MANUFACTURING CO.
Chambers
NORGE
Fletcher ENAMEL
PERFECTION STOVE
dmiral CORPORATION
Chicago Vit
Thor CORPORATION
Quincy
DAY & NIGHT DIVISION
MOFFATS LIMITI WESTON · ONTARIO · CANADA
BOSTON STOVE
HASKELL
GLOBE AMERICAN CORPORATION
American KITCHENS
Seeger
PHILCO
ACTIVE TOOL & MFG.
LISK-SAVORY
Majestic
Dearborn Stove
DUO-THERM
S.S. White Denta
ONLON BROS.
DETROIT-MICHIGAN STOV
CENTRAL RUBBER & STEEL
Victor Products
REPUBLIC STAMPING
HARDWICK STOVE
Payne Furnace DIVISION
YORK CORPORATIO
Laundry Queen Automatic
PRENTISS WABERS
ENAMEL PRODUCTS
EDDY ROAD AND TAFT AVENUE
CLEVELAND 8, OHIO
USEHOLD C WASHERS
ABC APPLIANCES
A B C IRONERS
L&H
NESCO INC
AllianceWare, Inc
Duchess WASHERS
MONARCH RANGES
CROSLEY
Murray Manufacturing
Magic Chef
KAISER METAL PRODUCTS
Ranney Refrigerator
bryant heater DIVISION
BENDIX Home Appliances
Maytag

CHANGE IN CHAIRMANSHIP OF NST TECHNICAL PLANNING DIV.

E. H. Shands, chairman of the Technical Planning Division of the National Safe Transit Program, and director of engineering and development for Geo. Roper Corp., has resigned both positions. The resignations followed his purchase of a floor and wall tile manufacturing plant in Lakeland, Florida.

Shands had been active on the NST Committee since its inception. His duties on the Committee are being taken over by Paul Bush, of Westinghouse Electric Corp., Mansfield, Ohio.

MIDDLE WEST SHIPPER-MOTOR CARRIER CONFERENCE

At their first regular meeting held in Des Moines, Iowa, January 28, a newly-formed organization of shippers and motor carriers in the middle west adopted a set of by-laws and elected officers as follows:

R. H. Thompson, general traffic manager, The Maytag Co., Newton, Iowa, *president;* E. W. Harlan, president, Bruce Motor Freight, Inc., Des Moines, *vice president;* and Henry A. Archambo, assistant director of traffic, Minneapolis Traffic Association, Minneapolis, Minn., *secretary-treasurer.*

Following election of officers, the group voted to hold their next regular meeting in Minneapolis, at which time 24 regional vice presidents will be elected, with equal representation between the shippers and the motor carriers.

The object of the Middlewest Shipper-Motor Carrier-Conference is to promote adequate motor transportation; to interchange ideas and information concerning transportation matters; to discuss such general questions as may come before the Conference; to develop and promote efficient and economical transportation; and to promote cordial relations between shippers and motor carriers.

The territory which will be covered by the Conference will comprise the states of Colorado, Illinois, Iowa, Kansas, Michigan (upper peninsula), Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wisconsin and Wyoming.

R. H. THOMPSON, CONFERENCE PRES.

The original meeting of a group interested in organizing the Conference was held last fall in Kansas City, Mo.

the grip of an **iron fist**

in a soft **velvet glove**

cush-on-strap by Sackner

A patented Steel Strapping faced with soft, fluffy cellulose padding. CUSH-ON-STRAP is prescored to desired lengths and ready for immediate use. Ideal for packing all types of appliances and other finished metal products.

Sackner Products
900 Ottawa Avenue, N.W.
GRAND RAPIDS 2, MICHIGAN

ANNOUNCE MATERIAL HANDLING CLINICS

Traveling material handling clinics to discuss local handling problems with chapter members of the American Material Handling Society in principal cities will be conducted during 1953 according to a decision of the board of directors of The Material Handling Institute, at a meeting in New York, January 26. The meeting was presided over by Howard M. Palmer, Institute president.

The clinics have been organized to promote a better understanding of correct application of material handling equipment.

Each of several traveling groups will be headed by an Institute officer with qualified specialists in each type of materials handling problem, selected from the Institute membership. The clinics will be scheduled to meet requests from chapters of the American Material Handling Society. In each city the specialists in the traveling panels will describe the proper use of material handling equipment. Then, AMHS members and other users of material handling equipment present at the meetings will outline specific problems from the floor to be analyzed by a panel of specialists.

These "road shows" are scheduled to begin traveling in the early Spring, and continue throughout the year.

Custom Protection – prevents shipping damage as no other packaging method known!

How often do *your* products arrive at their destinations scratched, cut or damaged in any way? Once a year – once a month – or oftener? If you had a single instance of damage in transit last year, it may be time to change to *custom protection* with Kimberly-Clark Interior Packaging – KIMPAK*. Companies like the Speed-Queen Corporation who revised and streamlined their packaging operations have found that nothing else protects so efficiently, so economically.

KIMPAK is soft, grit-free, easy to apply as wrapping paper. It will absorb up to 16 times its own weight in moisture within 30 seconds – protect against shock, scratching, pressmarking, vibration. KIMPAK is feather-light, yet gives more protection than most materials of far greater weight and density. Many concerns have found this important in reducing the size and weight of their packages, to offset recent postal rate increases.

Regardless of the product you manufacture, KIMPAK – in its many specifications – can be "tailored" to fit your particular needs. Today – investigate *custom protection* with KIMPAK. For complete information, write to Dept. K-33, Kimberly-Clark Corporation, Neenah, Wisconsin.

KIMPAK INTERIOR PACKAGING

*T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of Kimberly-Clark

Cosmetics

Business Machines

Furniture

Heavy Machinery

Confections

Appliances

Instruments

Food

Pharmaceuticals

Electronics

Chemicals

Glassware

THE TRANSIT LINE

120 LEADING MANUFACTURERS — have now been certified under the voluntary, cooperative program of pre-shipment testing sponsored by the National Safe Transit Committee. In this Special SAFE TRANSIT Section it seems in order to review briefly the principal steps in the formation and development of this sound program which is proving so advantageous to product manufacturers, carriers, suppliers of equipment and materials, and other interested groups.

July, 1953, will mark the fifth anniversary of an editorial campaign in this publication which was designed to awaken the appliance and metal products manufacturing industry to the multimillion-dollar losses which were incurred annually through damage in shipment. In the July '48, issue we said, "In this day of material shortages it would seem to approach criminal negligence to fabricate a much-needed appliance or metal product, finish it, assemble it, sell it and ship it, only to find that before the product reaches the ultimate consumer it is damaged beyond repair. . . ."

Since this first editorial presentation, we have devoted literally hundreds of pages to this cause.

With what represents, we hope, a reasonable degree of modesty, this publication will accept credit for three phases of the program. First of all, the *conception of the idea* in our publication offices almost five years ago — an idea for attacking one of the "bug bears" of modern product distribution through cooperative effort. Secondly, the *development of an organization outline* to include representatives from the cooperative associations of the manufacturers of major appliances and allied products, carrier associations, and associations representing the producers of packaging and shipping materials. The third point of service is represented in the fact that our publication has attempted to *keep industry well informed* of this cooperative and entirely voluntary program for saving millions of dollars in shipping losses and for building customer good will, by using editorial space unsparingly during the intervening months.

The real credit

The real credit for the development of a practical and workable preshipment testing program based on technical knowledge and practical experience, plus the endless details involved in coordinating such a program, *should go to others.* We approached the president of the Porcelain Enamel Institute in early 1948 with the suggestion that the P.E.I. coordinate and sponsor the program, and approached R. F. Bisbee and top executives at Westinghouse Electric Corporation, Manfield, with the suggestion that Mr. Bisbee head such a program as general chairman. The present state of development of the National Safe Transit program gives a ready answer to the willingness of these men and their respective organizations to cooperate wholeheartedly. This is particularly emphasized when it is considered that many of the products now included in the scope of the program are products which do not use ceramic finishes.

A review of the NST organization chart will show many other associations and representatives of individual manufacturers who have donated their time and services to making the NST program a success.

The power behind the pre-testing program

The industry group includes the leading associations which represent product manufacturers in the appliance and metal products fields, the associations representing all major modes of transportation, the leading technical sources, recognized packaging and shipping testing laboratories, and the leading associations representing container manufacturers. Various branches of the Government and the Armed Services have shown keen interest in the program, and future specifications will in some instances include NST tests.

As indicated, 120 leading companies have been certified under the program, and many others are preparing their packaged products for certification.

What cooperation can do

A focal point for the NST program will be the national meeting scheduled for Chicago on March 16. Here, representatives of manufacturers, technical groups, carriers, and suppliers will gather to pool their ideas for the common interests. Those who attend will get the viewpoints of users of the program, of the carriers, and of key men in distribution.

One feature of the program will be a 30 minute color-sound movie which presents a complete but concise story of NST.

When it is considered that the program to date has been solely the result of voluntary, cooperative effort — including a number of important published reports of sub-committees, hundreds of hours of laboratory and field work, and the time and professional talent required for the development of the full color-sound movie — the power of cooperation becomes evident. All members of the Committee work without remuneration, and the results of their work is offered to *all* appliance and allied products manufacturers on an equal basis.

Everyone wins

Here's a project where everyone wins through reduced handling and shipping losses, through improved packaging, shipping and materials handling procedures, and, in many cases, through lowered costs.

If you aren't on the NST "bandwagon" now, we suggest you contact the National Safe Transit Committee, 1346 Connecticut Ave., N.W., Washington 6, D. C., so that your company and your sales outlets may soon begin to benefit through participation in this fine program.

Dana Chase

Industry-wide Safe Transit meeting

program in Chicago, March 16, to feature "NST—A Sales Tool for You"

EVERYONE interested in the Safe Transit of products has been invited by the National Safe Transit Committee to attend an Industry-Wide Safe Transit Meeting to be held at the Palmer House, in Chicago, on Monday, March 16.

This power-packed, streamlined meeting will be devoted to the subject of *"Safe Transit — A Sales Tool for You."* Leading representatives of manufacturing companies, carrier groups and container firms will tell how in addition to cutting transit damage, organizations have made their participation in the National Safe Transit Program a vital part of sales, sales promotion, and public relations programs.

The morning program will include case histories on *"How Safe Transit Has Aided Our Company"*, by five of the manufacturers whose companies have adopted the pre-shipment testing program, and five-minute case histories from distributors. Representatives of the Association of American Railroads, American Trucking Associations, Inc., Railway Express Agency, and Air Cargo, Inc. will speak on the topic *"The Carriers View Safe Transit."* Also featured on the morning program will be a presentation of the *new color-sound film on the NST program*, which explains the test procedures in full and correlating test shipments.

Luncheon speaker will be E. Carl Sorby, vice president, Geo. D. Roper Corp., speaking on the subject *"Safe Transit as a Sales Tool for the Manufacturer."*

The only charge in connection with the meeting is $5.00 to cover the cost of luncheon and registration.

NOTE: If your reservation for this meeting is not in, clip the coupon on Page ST-25, and mail today.

"NST—a Sales Tool For You"

Presiding: R. F. Bisbee, Westinghouse Electric Corp;
General Chairman, National Safe Transit Committee

10:00 a.m. **Address of Welcome**
by W. A. Barrows, president, Barrows, Porcelain Enamel Co.; president, Porcelain Enamel Institute

10:05 a.m. **NST Program Review and Introduction of NST Movie**
by Dana Chase, editor and publisher, *finish* magazine; chairman, Educational Division, NST Committee

10:50 a.m. **Case Histories — "How NST Has Aided Our Company"**
with P. W. Bush, Westinghouse Electric Corp.; chairman NST Technical Planning Division, presiding

Manufacturers
Globe American Corp. — C. R. Strayer
Tappan Stove Co. — G. L. Dobson
A. O. Smith Corp. — W. W. Higgins
A. J. Lindemann & Hoverson Co. — E. J. Thomes
Frigidaire Division of GMC — E. E. Spriggs

Distributors
Sears Roebuck & Co. — O. T. Shands, packaging engr.
Georgia Power Co. — W. H. Murray, asst. supervisor of purchases and stores

11:30 a.m. **The Carriers View Safe Transit**
with R. P. Carr, Frigidaire Division of GMC; chairman NST Carrier Coordinating Div., presiding
Association of American Railroads — F. B. Gibson
American Trucking Associations, Inc. — J. M. Miller
Railway Express Agency — J. J. Toughey
Air Cargo, Inc. — J. G. Erwin

12 noon Luncheon—**"Safe Transit as a Tool for the Manufacturer"**
by E. Carl Sorby, vice president, Geo. D. Roper Corp.

1:30 p.m. **"The Retailer Looks at Safe Transit"**
by Joseph T. Meek, president, Illinois Federation of Retail Associations

2:00 p.m. **"Question and Answer Forum"**
with F. A. Petersen, of Hunter-Thomas Associates, chairman, NST Laboratory Coordinating Div., moderator

Manufacturers
E. Zelinski, Hotpoint Company
J. S. Renner, Admiral Corporation
R. M. Hindman — Crosley Division of Avco

NST Committee Representatives
P. W. Bush — Westinghouse Electric Corp.
W. B. Keefe — Westinghouse Electric Corp.
M. F. Weber — Southern Express Co.
J. C. Oliver — Porcelain Enamel Institute

Carriers
R. E. L. Harmon — Assoc. of American Railroads
J. M. Miller — American Trucking Assns., Inc.
J. J. Toughey — Railway Express Agency
J. G. Erwin — Air Cargo, Inc.

Laboratories
W. J. Balster — Wilmer J. Balster & Assoc.
C. J. Zusi — Container Laboratories, Inc.
B. F. Kells — Container Corp. of America
J. M. Ladd — General Box Company

3:00 p.m. **"New Horizons for National Safe Transit"**
by R. F. Bisbee, general chairman, NST Committee

for a complete line of

WATKINS CONTAINERS

AND OTHER MATERIAL HANDLING NEEDS

See KIECKHEFER MILWAUKEE

Producers of...

WATKINS CONTAINERS
KIECKHEFER PALETBOXES
SPECIAL DESIGN CLEATED FIBRE CONTAINERS
CRATES—PALLETS
BOX SHOOKS—WOODEN BOXES
INDUSTRIAL LUMBER

Appliances, office equipment, furniture — yes, many, many products are ideally suited to the Watkins type container. Kieckhefer-built containers of this type are strong, light in weight, and offer complete protection from dust and dirt. They offer advertising (billboard) value and in many cases save money on the packing line.

For all applications—from small parts, to neon signs, to industrial equipment—the Kieckhefer-Milwaukee practical experience and engineering background (50 years) can give you the right answer for safe and economical shipping.

Send your problem to us today — you will hear from us promptly, without obligation.

Kieckhefer-Milwaukee Containers will meet your Government Specifications

PACKAGING ENGINEERS KIECKHEFER MILWAUKEE FOR FIFTY YEARS

KIECKHEFER BOX AND LUMBER CO.

• WOODEN BOXES • BOX SHOOKS • CRATES • CLEATED FIBRE SHIPPING CONTAINERS •

1715 WEST CANAL STREET, MILWAUKEE 3, WIS.

Objectives of defense packaging program

information on packaging division of Defense Supply Management Agency, plus trends in packaging and materials handling for the military

by R. A. Norris • CHIEF, PACKAGING DIVISION, MUNITIONS BOARD STANDARDS AGENCY

IN GENERAL, the technical aspects of standardization (including packaging) are done by the three Departments, the Army, the Navy or the Air Force. In the Packaging Division of the Supply Management Agency,* we are essentially in the policy business. We work closely with the Army, Navy and Air Force. When packaging problems arise we ask that companies in defense work take their problems to the Departments concerned, for resolution.

The fundamental objectives of our Agency are to increase the combat effectiveness of the military forces and to conserve money, manpower, time, production facilities and natural resources through the four-sided program of the agency in the fields of specifications, standards, inspection and packaging. My direct concern is with packaging, but of course specifications and standards are the two draft horses which pull the packaging wagon along the road to economy.

The packaging program has three main objectives backing up the one of economy: elimination of duplication of effort, and the achieving of greater efficiency in the field of packaging and preservation, and getting supplies to the user in suitable condition.

The packaging division of the Agency is a going concern, which has been generated through a series of logical progressions since the Military began to recognize packaging as a key to many of its logistical problems.

Army and Navy Packaging Boards were established in 1943, getting the development of new packaging and packing techniques underway in earnest. The demands of a global conflict made it apparent that existing packaging and packing specifications were inadequate to the tremendous task the nation faced in getting supplies to troops afloat and in the field.

From this unilateral beginning grew the Joint Army-Navy Packaging Board which began operation in February 1945. This unit in turn evolved into the Munitions Board Joint Packaging Committee, a purely advisory policy level group. In August 1950, a Packaging Division was formed in the Office of Procurement Methods of the Munitions Board. That Division became the Munitions Board Packaging Agency in April 1951.

The Packaging Agency, and the Inspection Agency, which followed a similar developmental course, were consolidated with the Standards Agency in July of 1951. The addition of these two agencies brought Standards Agency responsibility to bear on the fields of specifications, standards, packaging and inspection. For the first time these companion efforts became a single working package. It had finally been recognized that packaging and inspection were definitely tied-in with the business of specifications and standards, and this four-wheeled vehicle has been carrying a mighty load since.

One of the key statements of responsibility in our Agency reads as follows:

"To review, amend, revise, promulgate and establish within the Dept. of Defense, Military specifications, standards and qualified products lists, and resolve differences between military department, bureaus, and services with respect to the same.

Further to assign among the military departments, bureaus and services within the Dept. of Defense, when practical and consistent with their capacity and supply interest, the responsibility for portions of the standardization programs and establish time schedules for the completion of such assignments and to make final decisions in all matters concerned with the standardization authority, subject to review and modifications by the Secretary of Defense."

Industry advisory committee

It is our belief that this authority with which we have been charged, can best be exercised through cooperation, and by cooperation we mean cooperation not only in the Dept. of Defense but also cooperation with Industry. We want men from industry to thoroughly understand our packaging problems and assist us. We are currently working with industry through an industry advisory committee which meets about four times a year. There are eighteen industry men on this committee and two government men. About one half of the personnel on this committee are from companies producing containers or packaging materials while the other half are users of containers. It is a well balanced committee of hard working individuals. Men who not only attend the meetings, but between meetings, through a subcommittee set up, gives serious consideration to and provide us with recommendations on specific problems.

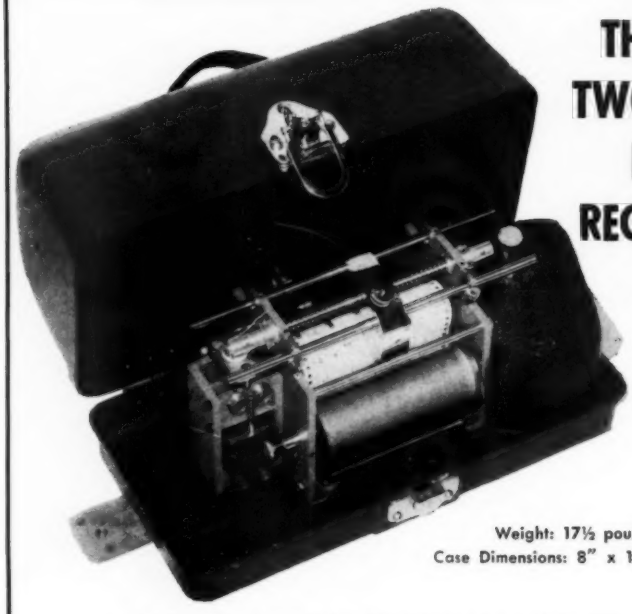
Packaging, to my mind, is the critical step in the long trip of an item from the design stage to effective use in battle. If a package is inadequate for the job it must do, all of the labor of the designer, the patternmaker, the lathe operator, and the hundreds of other persons involved

*The Defense Supply Management Agency was set up in July, 1952, under Public Law No. 436. It is essentially divided into two groups, one charged with the development of a single catalog system for all military items of supply, and the other charged with supply standardization.

in getting out defense goods, is wasted. American ingenuity in developing better weapons and equipment for defense means nothing if those items of supply are not delivered to the battle line in a condition that enables the fighting man to use them effectively against the enemy. Those of us engaged in military packaging have a grave responsibility.

Many have tended to think of military packaging as a necessary evil. We at our Agency feel that packaging has never received the attention it has deserved. Those of you readers who have ever been faced with the necessity for combat-loading a vessel undoubtedly share our view.

In spite of our shared opinion that military packaging is an essential contributor to efficiency both ashore and afloat and our agreement that much of it still is ineptly done, we must recognize that the payoff in the eyes of the taxpayer comes when we mention the current cost of this job.



THE R-S TWO-WAY RIDE RECORDER

Weight: 17½ pounds
Case Dimensions: 8" x 15" x 8"

An Important Unit in the "Safe Transit" Program
Used in the Laboratory and in the Field

THE R-S Two-Way Ride Recorder meets all of the specifications adopted by the National Safe Transit Committee in the standard test procedure. Same sturdy design that has been used so successfully during the past twenty-eight years by both railroads and shippers. A simple and reliable instrument.

The amount of savings realized by many manufacturers who have used this record in accordance with NST testing procedure are enormous. One manufacturer has reduced losses from 28% to less than 1% because of the adoption of this "pre-transportation" testing. Another manufacturer making 80,000 units per year reports a saving of over $1 per unit because of saving in more effective, but cheaper and simpler, design of merchandise and crating.

Participate in the "Safe Transit" program as many others are doing. Write for more information on how YOU can save money and protect your products in transit.

"Now available with 16 day clock movement"

THE IMPACT REGISTER CO.
CHAMPAIGN, ILLINOIS

Military packaging a big business

Most laymen don't understand the problems of hatches, water-damage, low and high temperatures, high humidity, or some of the other problems which good packaging can lick, but they do know the value of a dollar. They express amazement that military packaging is big business. They whistle when they are told that an estimated six per cent of the total procurement dollar went for packaging in fiscal year 1951 . . . . some three billion dollars. And then they become interested in making sure that they are getting their money's worth. And more and more they are getting their money's worth.

Part of the reason for this high cost has been the direct result of overspecification.

Lack of uniformity together with varying packaging requirements in the various Services and Bureaus are further causes of added packaging cost to the government. It places a burden on the manufacturer which, in many cases, slows down production, reduces efficiency, and ties up personnel. With the help of all hands both in the military services and industry, we are making progress in this area.

High packaging costs are, as I have said, a big headache. We are trying to relieve it with the aspirin of critical review of specifications and standards. It is our position that funds spent to meet excessive packaging requirements cost us sorely needed end items. Of course, on the other hand, inadequate and inefficient packaging will result in serious loss of end products.

By streamlining and unifying packaging requirements to provide *adequate*, but not excessive protection, we will enable manufacturers to save time, money, and personnel. Those savings will be reflected directly in lower cost to the Government. The manufacturer will get higher production all along the line, for it is simple logic that the elimination of a time-consuming special packaging operation will speed up the whole production line.

We have been emphasizing the revision of and the consolidation of

existing basic packaging specifications and the promulgation of new packaging specifications and standards in specific fields.

Need standards and specs. which industry can meet

The matter of adjustment of differences with industry is an important point. We must establish standards and specifications which industry can meet. Wherever possible, in our whole standards program, we are adopting industry standards . . . . standards which are a normal part of industry operation. Where it has been demonstrated that industry developments in packaging have been satisfactory to the Armed Services, those industry packaging practices will be adopted.

Now that the important basic packaging and marking standards and specifications are in relatively good condition, we are taking action to have packaging requirements for essential groups of items brought up to date. We are presently concerning ourselves with bearings, the packaging of steel products, the packaging of materials handling equipment spare parts and assemblies, together with a standard for the palletization of items of equipment.

We recognize that the best program in the world will not work unless the people charged with operations are given a chance to understand it thoroughly. We are concerned with educating packaging people, both in the military services and industry, on how best to use the documents we provide.

Considering more military packaging schools

The Joint Packaging School at Rossford Arsenal has already proved its worth, but we feel that the subcontractor on the West Coast or in the Deep South should have a chance to provide his personnel with this training too. Rossford is inaccessible to many of the little fellows charged with getting defense goods out. We are presently investigating the possibility of setting up similar schools at strategic locations throughout the country.

In addition, we have in mind the

Saved 14 containers!

Saved 50% handling costs!

SIGNODE OFFERS YOU BETTER STRAPPING METHODS*

Even your "best" can be improved. A manufacturer of TV transformers formerly shipped 168 units in 15 cartons. Signode helped them work out a multi-unit package combining 175 units in *one*—bound into a compact pallet load with Signode steel strapping. This application was easy to work out but . . .

this one was a toughie!

Diesel springs, heavy and unwieldy, formerly were shipped loose in railway cars. At the point of assembly, each of eight component parts of the spring had to be handled separately. Signode, with the foundry men, worked out a new idea. Three pre-bundled spring assemblies were strapped onto an inexpensive pallet. When the springs reached the assembly line, the steel strapping was left on the individual spring bundles until they were mounted in place. This bundle method cut handling costs 50%!

we'll help you, too!

If you want to try palletizing for the first time, or improve your present methods, we'll help you, too. To have a Signode man call, write

TESTED AND APPROVED

SIGNODE

Steel Strapping Company

2639 N. Western Ave., Chicago 47, Ill.

this seal means security in shipping

SIGNODE

Offices Coast to Coast.
In Canada: Canadian Steel Strapping Co., Ltd.
Foreign Subsidiaries and Distributors World Wide

possibility of a packaging caravan . . . . or several . . . . whose training facilities can be housed in vans and transported to plants, military bases and installations, for on-the-job training sessions. We are going to make every effort to pass the word to the people who are doing the job.

Palletization, mechanical handling usage increasing rapidly

Earlier, I mentioned a palletization standard we have in the works. It might serve to show how our program will prove of benefit not only to the military but to private enterprise in *its* internal operations.

Palletization and the mechanical handling of military supplies is increasing very rapidly. While military storehouses are in general single story structures and adaptable to mechanical handling, industry warehouses in the past have in general been multistory structures adapted for a conveyor operation. However, industry, applying some of the excellent lessons learned during World War II, is building many single story warehouses and is rapidly expanding the palletization technique.

Currently, considerable emphasis is being placed on packing for transportation by air. This air transport, being expensive, is resulting in the design of many packs in a wooden shipping container, for shipment by conventional surface transportation to storage depots or points of aircraft loading, with an inner pack of light weight for the aerial journey. The outer box is removed just prior to loading in aircraft. It is anticipated that a document covering packaging of military items for air shipment will be available in the near future.

In many standard World War II packs, the combined weights of shipping containers amounted to approximately 30% of the gross weight. The new deal in package design for air shipment has been set at approximately 15% tare weight. One can readily envisage the huge savings in transportation costs, the more efficient use of aircraft, together with the requirements for fewer aircraft for the transportation of supplies, if we should again be plunged into all out war.

Future promises new concepts in transporting military goods

Since we are facing a future which promises to produce new concepts in transportation of military goods, we in the Packaging Division are sitting in with the Packaging Panel of the Research and Development Board. We are developing a close working relationship in the evolution of new packaging materials and new packaging techniques.

In addition to our daily concerns with packaging specifications and standards we have assumed, at the request of the Inspection Division of our Agency, the task of reviewing and recommending training methods for Inspection personnel in packaging so that they may be completely informed on basic packaging procedures. We believe that inspection personnel have a most important mission in relation to military packaging. It is significant that several of the regional Inspection offices have requested a short training course for their Inspection people.

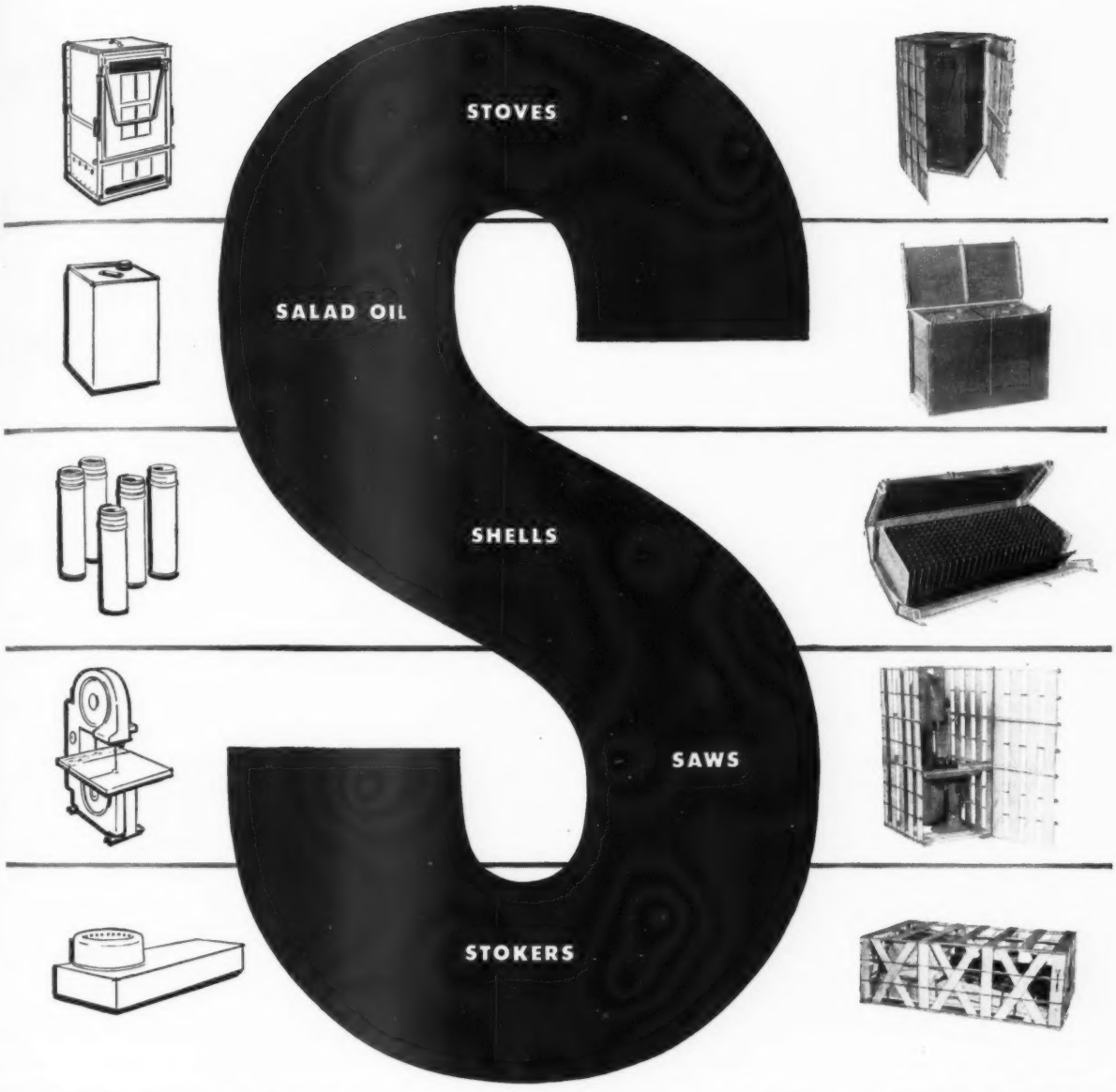
Evidence of increasing awareness of the correlation of military packaging with the overall defense effort comes in every day. We have been in conference with representatives of those in charge of the National Stockpile. They have indicated that they will welcome assistance in packaging some of those items which have caused them difficulty and loss.

Packaging for national stockpile presents a new challenge

Packaging for the stockpile presents a challenge which is new in this field. While the number of handlings that stockpile material receives is relatively insignificant, the length of time in storage presents problems which we have not previously encountered.

The field of military packaging is an ever shifting one. We must anticipate requirements before they become pressing . . . people's lives depend on our ability to project our thinking into new sets of circumstances.

"THAT'S KELLY— HE'S THE STRAPPING FOREMAN."



WIREBOUND BOXES AND CRATES

handle them all—from A to Z

Whether your product is large, small, rugged, fragile, heavy or light; it will ship *better, safer* and *more* economically in a Wirebound Container.

Prove it to yourself!

Wirebound
BOXES & CRATES

wood and steel for strength and resiliency

MAIL THIS COUPON, TODAY!

WIREBOUND BOX MANUFACTURERS ASSN.
Room 1154, 327 South LaSalle Street Chicago 4, Illinois

Gentlemen:

☐ *I want the A.B.C.'s about Wirebounds. Send a free copy of your booklet, "What to Expect from Wirebound Boxes and Crates."*

☐ *Please have a Wirebound sales engineer give me the facts as they apply to our product.*

Name _____ Position _____

Firm _____

Street and Number _____

City _____ Zone _____ State _____

Our Product is _____ It Weighs _____

You Are Invited To Atten·

AN INDUSTRY-WIDE SAF TR

presentin·

"SAFE TRANSIT - - Sa

WHERE: Palmer House
Chicago, Illinois

WHEN: Monday, March 16, 1953, starting at 10:00 A.M.

WHO'S INVITED: Representatives of Finished Product Manufacturers (Sales Executives, Packaging & Shipping Men, Packaging Engineers, Traffic Managers and Quality Control Men — all others interested in the Safe Transit of packaged products); also Representatives of Carriers, Container Firms, Materials Handling, Packaging Laboratories and Government Packaging Engineers.

WHAT YOU SHOULD DO: Send in the Reply Coupon, in the lower right hand corner, to the National Safe Transit Committee, 1346 Connecticut Avenue, N.W., Washington 6, D. C.

PRE-TESTED
SAFE TRANSIT
SHIPMENT
The manufacturer certifies that this PACKAGED PRODUCT meets the pre-shipment testing standards established by the National Safe Transit Committee and will withstand NORMAL transportation and handling hazards.
NATIONAL SAFE TRANSIT COMMITTEE
1346 Conn. Ave., N.W. Washington 6, D. C.
MAKE SAFE HANDLING YOUR JOB!

THIS SAFE TRANSIT LABEL IS A SALES LABEL TOO!

IF THE Safe Transit of appliances, radio, television and similar finished products is a primary concern to you and your company, you will want to attend the Industry-wide Safe Transit Meeting to be held at the Palmer House, in Chicago, on March 16, and devoted to the theme, *"Safe Transit — A Sales Tool for You."*

This one-day conference has been programmed to show you how the National Safe Transit Program operates and how it can be made a vital part of any sales, sales promotion, or public relations program. A 30-minute color-sound film will show and tell you how the program works, and the background of the Safe Transit Tests. Leading representatives of industry, carriers, and container firms will tell you how Safe Tansit has been utilized as a sales tool, and how it can be of even greater benefit in the days to come.

Initiated over four years ago, the National Safe Transit Program has realized substantial reductions in transit damage for its participants. In that time, 20 leading associations have come forward to endorse the Program and the pre-shipment tests upon which it is based. Four leading carrier groups are active participants, and over 135 manufacturers and laboratories have been certified and are realizing positive results from this widely accepted testing program.

The National Safe Transit Program has demonstrated that it does reduce damage to products in transit — that it leads to product improvement and to better packaging and shipping facilities. *Now is the time to assign it the role of Sales Agent.* Plan to attend the Industry Safe Transit Meeting in Chicago on March 16, and learn how Safe Transit can be made a Sales Tool for you, also!

Plan to Attend!

PLEASE MAIL THIS COUPON AT ONC

. . . .

TRANSIT CONFERENCE

. . . .

ales Tool For You"

PROGRAM

Presiding: R. F. Bisbee
Westinghouse Electric Corporation General Chairman, National Safe Transit Committee

10:00 A.M. **Address of Welcome**
by W. A. Barrows, President, Barrows Porcelain Enamel Co., President, Porcelain Enamel Institute

10:05 A.M. **"The National Safe Transit Program" —**
a full color and sound film with introduction by Dana Chase, Editor & Publisher, *finish* Magazine; Chairman, Educational Division, National Safe Transit Committee

10:50 A.M. **"How Safe Transit Has Aided our Company"**
E. H. Shands, Director of Engineering & Development, Geo. D. Roper Corporation, Chairman, Technical Planning Division, NST, Presiding

Five-Minute "Case Histories from Manufacturers"
Globe American Corp. — Clark Strayer
Tappan Stove Co. — G. L. Dobson
A. O. Smith Corp. — Waldo Higgins
Lindemann & Hoverson Co. — E. J. Thomes
Frigidaire Div., GMC — E. E. Spriggs

Five-Minute "Case Histories from Distributors"
Sears, Roebuck & Co. — representative
Georgia Power Co. — representative

11:30 A.M. **"The Carriers View Safe Transit"**
R. P. Carr, Frigidaire, Chairman, Carrier Coordinating Div., Presiding
Association of American Railroads — representative
American Trucking Association — representative
Railway Express — representative
Air Cargo — representative

12:00 Noon Luncheon
"Safe Transit as a Sales Tool for the Manufacturer"
E. Carl Sorby, Vice Pres., Geo. D. Roper Corp.

1:30 P.M. **"The Retailer Looks at Safe Transit"**
Joseph T. Meek, President, Illinois Federation of Retail Associations

2:00 P.M. **"Question and Answers"**
A Panel of Industry Representatives will answer questions from the floor

3:00 P.M. **"New Horizons"**
R. F. Bisbee, Westinghouse Electric Corp.

ADVANCE REGISTRATION COUPON

Send in this coupon NOW to aid Committee in its planning

National Safe Transit Committee -- 1346 Connecticut Avenue, N.W., Washington 6, D.C.

We expect to have _____ persons present from our organization at the NST Committee's Safe Transit Conference at the Palmer House, Chicago, on March 16, 1953. They are:

Name: Position:

_____ _____

_____ _____

_____ We are attaching additional names.

We are making our own hotel reservations, mentioning that we are attending the Industry Safe Transit Meeting.

Signed: _____

Company _____ Address _____

MICHIGAN STATE COLLEGE FOUR-YEAR PACKAGING COURSE

The Department of Forest Products of Michigan State College, East Lansing, Michigan, has just published a brochure entitled "Your Career in Packaging."

James W. Goff, instructor in the department, said that the brochure describes opportunities in the packing field and outlines in detail the school's four-year packaging course.

It was pointed out that Michigan State College is a member of the Packaging Institute, and also works closely with the Society of Industrial Packaging and Materials Handling Engineers.

PACKAGING INSTITUTE CHANGES DATE OF 15TH ANNUAL FORUM

The Packaging Institute's 15th annual forum will be held October 12-14 at Hotel Statler, New York City, instead of the previously announced date of one week later, according to Robert de S. Couch, Institute president.

CARNEY HEADS EXHIBIT MGRS. PRACTICES COMMITTEE

C. J. Carney, Jr., managing director of the Society of Industrial Packaging and Materials Handling Engineers and its annual exposition, tech-

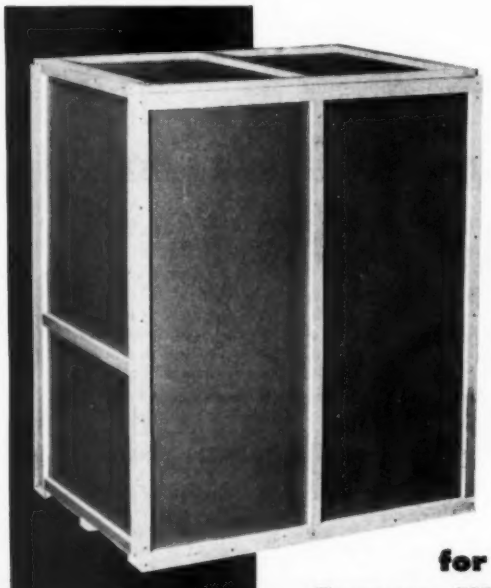
nical short course, and competition, has been named chairman of the Standard Practices Committee of the National Association of Exhibit Managers. The appointment was made by Albert H. Hall, NAEM president.

Previously, Carney has served as chairman of the NAEM Committee on Internal Organization, which recently completed a review of the group's activities and recommended a new national committee line-up.

ACME STEEL APPOINTMENTS

Carl J. Sharp, president of Acme Steel Company, Chicago, has announced the appointment of Michael Burtyk as superintendent of the company's new Scarborough Works at Toronto, Ontario, where production will soon be started. Burtyk was formerly general foreman of manufacturing at the company's Riverdale, Ill., plant.

The appointment of Edward C. Kent as manager of industrial relations for Acme Steel's plants in Chicago, Riverdale, and Racine, Wis., was also announced.



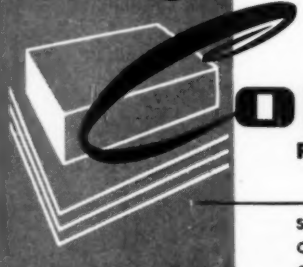
Cleated Fibre Shipping Containers

for Refrigerators, Ranges, Washers, Furnaces and other appliances

Major appliances are handled and shipped with greater safety when packaged in cleated fibre containers.

Cornell Cleated Fibre Containers are dirt-proof, light in weight, strong, and can be printed to dramatically display and advertise your product.

FOR boxes ...IT'S



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PAPERBOARD PRODUCTS CO.
MILWAUKEE 1, WISCONSIN

SPECIALTY PAPERBOARDS • FOLDING CARTONS
CORRUGATED BOXES • SOLID FIBRE BOXES
CLEATED FIBRE CASES • FIBRE WALL BOARDS

ST-26

MILES ELECTED PRESIDENT OF WOODEN BOX ASSOCIATION

At the 54th annual meeting of the National Wooden Box Association, R. F. Miles, president of Rathborne, Hair and Ridgway Box Company, Chicago, was elected president. The meeting was held in St. Louis, January 22-23.

Three vice presidents elected to serve in 1953 are: Curt F. Setzer,

Setzer Forest Products, Inc., Sacramento, Calif.; Leslie J. Chaffee, Chaffee Brothers Co., Oxford, Mass.; and J. D. Bronson, Cascade Lumber Co., Yakima, Wash.

P. John Galbraith, of Philadelphia, was reelected treasurer, and C. D. Hudson, of Washington, D.C., was reelected executive vice president.

Among the speakers during the two-day session were Elmer Kruse, director of packaging, Wagner Electric Co., St. Louis; H. R. Bushman, former president, St. Louis Fruit and Products Assn.; and Joseph F. Holland, Pevely Dairy Co., St. Louis.

In his annual address, retiring president, D. A. McNeill, Jr., of McNeill, Lauff & McNeill, Thomson, Ga., stated that "The needs and opportunities of the future are very great, and we must continue and increase our efforts both as an association and as individuals."

"We condemn complacency and the desire to rest on security," continued McNeill, "but too many of us have unknowingly fallen into that same rut. Many of us are so absorbed in the day to day mechanics of operating our business that we neglect customer relations. We should be ever on the alert to give old and new customers good service and good value."

MINNESOTA MINING & MFG. EXPANDING RESEARCH

Purchase of a 125-acre tract on the eastern boundary of St. Paul, Minn., for a long-range building program for research purposes was announced by Minnesota Mining & Mfg. Co. Plans call for housing many of the firm's major research projects on the tract.

The first unit in the multi-million dollar development will be a $3,000,000 laboratory for the company's central research department it was announced by William L. McKnight, board chairman. Dr. Harry N. Stephens is director of central research for 3M.

Commenting on the role research and technical development has played in the company's growth, McKnight

to Page ST-30 →

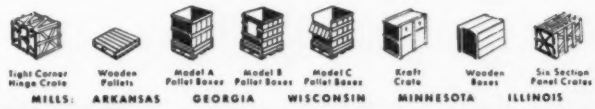
Use B-G Tight-Corner Collapsible Pallet Boxes–for Profit and Convenience in Every Stage of Handling

Year after year, progressive manufacturers everywhere are discovering that the B-G Tight-Corner Pallet Boxes and Containers are truly profit makers for them, reducing their materials handling costs and increasing storage space.

B-G Collapsible Pallet Boxes are light in weight, yet of ample strength to handle up to 5000 lbs. Collapsible feature is made possible by the *Exclusive B-G Tight-Corner Hinge.* Boxes come 65% assembled and require minimum storage space when not in use. B-G Boxes are economical and rugged enough to stand up under repeated shipments.

Whatever your handling problems may be—whether they involve difficulties and bottlenecks in your assembly lines, inter plant handling, storage or shipping, B-G Containers are the ultimate solution. Engineered to your specific requirements, B-G Tight-Corner Boxes will handle your product safely and efficiently and assure you lower cost on every operation.

EVERY DAY MORE PRODUCTS ARE BEING HANDLED THE B-G WAY



MILLS: ARKANSAS GEORGIA WISCONSIN MINNESOTA ILLINOIS

always check B-G

Write for complete details and prices to...

BIGELOW-GARVEY lumber company

General Office and Laboratory

320 W. HURON STREET • CHICAGO 10, ILLINOIS

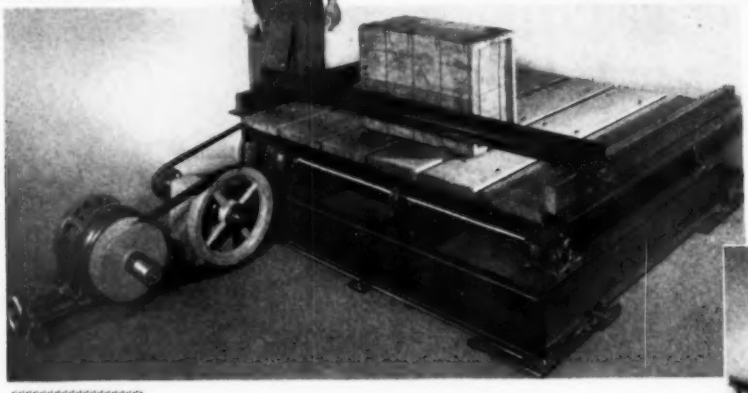
DECREASE LOSS and DAMAGE CLAIMS

INCREASE YOUR EARNINGS

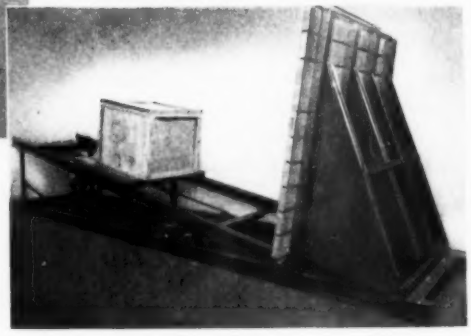
EARNINGS

Assure CUSTOMER SATISFACTION thru
PRE-SHIPMENT TESTING of your packaged products
on

L.A.B. Package TESTING EQUIPMENT



Why make time consuming test shipments . . . when you can produce the same results in a few hours, . . . while you watch?



VIBRATION TESTERS and CONBUR INCLINED PLANE IMPACT TESTERS

FOR LOAD CAPACITIES FROM 600 LBS. TO 10,000 LBS.

- **Approved by National Safe Transit Committee**
- EXTENSIVELY USED IN MANY U. S. GOVERNMENT LABORATORIES
- AND BY SHIPPERS THRUOUT INDUSTRY
- APPROVED BY CARRIERS

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L. A. B. CORPORATION • SUMMIT, NEW JERSEY
TEL. SUMMIT 6-3261

CHICAGO MILL can help YOU deliver safely

Wirebound,
Nailed or Hinge Corner
Cleated Plywood
Cleated Craveneer
Cleated Corrugated
Watkins Type Containers
Shop and Tote Boxes
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★

FOR DOMESTIC OR EXPORT
FOR PEACE OR DEFENSE

A shipping container for every shipping purpose

Admiral and many other leading appliance manufacturers depend upon Chicago Mill and Lumber Company to provide safe shipment for their finished products.

If you are having difficulty in solving a troublesome shipping problem, call in a Chicago Mill representative. Technical information, packing information, and testing services are available without obligation.

FOR SAFER TRANSIT BY • TRUCK • BOAT • TRAIN • PLANE

CHICAGO MILL AND LUMBER COMPANY

33 South Clark Street — Chicago 3, Illinois

Plants at: Helena, Arkansas • Greenville, Mississippi • Rockmart, Georgia
Tallulah, Louisiana • South Fork, Colorado • Chicago, Illinois

NEWS → *from Page ST-27*

said that for every dollar so invested the company has already realized $25 in sales. "To date we have spent about $35,000,000 in our laboratories. This expenditure has already resulted in about $875,000,000 in total sales," stated McKnight.

Announcement of the plans for the research area development came as 3M entered its second half century in business.

LLOYD NAMED SALES MGR. OF GENERAL BOX LOUISVILLE DIV.

W. C. Embry, vice president and director of General Box Co., has announced the appointment of O. D. Lloyd as sales manager of the Louisville corrugated division.

Lloyd formerly was manager of the cleated corrugated department of Cornell Paperboard Products Co., Milwaukee. He was a member of the Army Ordnance Packaging Staff during World War II.

NST CERTIFICATION FOR EASY, LUXRA, PEERLESS, BRYANT

The National Safe Transit Committee has announced the certifications of Easy Washing Machine Corp., Syracuse, N. Y.; Luxra Company, Atchison, Kansas; Peerless Mfg. Corp., Louisville, Ky.; and Bryant Heater Division, Affiliated Gas Equipment, Inc., Tyler, Texas.

NATL. CONTAINER ACQUIRES EMPIRE

It is reported that National Container Corp., New York, has purchased Empire Box, Inc., Atlanta. It was indicated that Empire will continue under the name of National Container, becoming part of a coast-to-coast chain which now includes 14 converting plants, five kraft pulp, liner board and paper mills and a multiwall kraft bag operation.

PACKAGING INSTITUTE TO MEET DURING AMA PACKAGING SHOW

The annual spring luncheon meeting of the Packaging Institute will be held in Chicago during the American Management Association's National Packaging Exposition which will be held April 20-23.

INTL. PAPER OPENS DALLAS OFFICE

A consolidated sales office serving Texas and the Southwest was opened in Dallas, February 2, by International Paper Co., it was announced by Richard C. Doane, vice president and general sales manager.

Industrial Literature

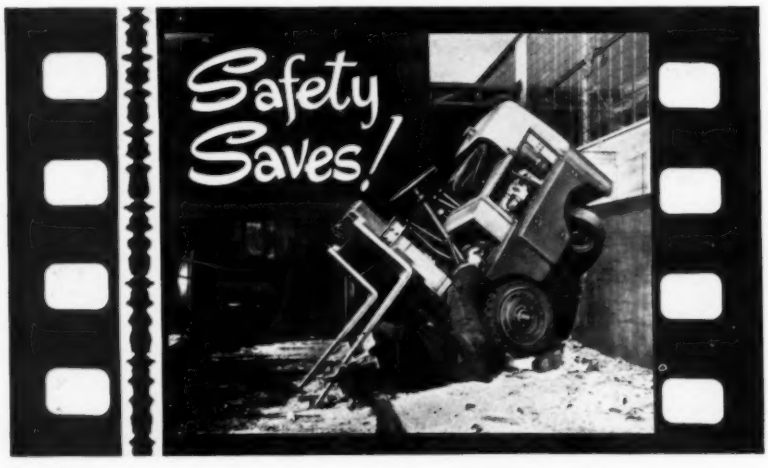
NEW DRIVER TRAINING AND SAFETY MOVIE

A new training and safety film for industrial truck operators is entitled *Safety Saves.* The new 30-minute sound movie was filmed at on-the-job factory and warehouse locations. It dramatically illustrates the "do's and don'ts" of safe driving, and shows the causes of most truck accidents and how to avoid them.

The "villain" of *Safety Saves* is Willie the Cowboy, a lad who drives his fork truck like a hot-rod. He is the kind of driver who doesn't look where he's going, ignores overhead clearance, and parks his truck in the middle of busy aisles.

Along with examples of how not to handle an industrial truck, the movie shows the safe, correct method. Besides fork truck operation, the movie contains instructions for operators of towing tractors and hand trucks.

For truck owners who want to reduce accidents and cut damage to goods, the new movie should prove a valuable training tool. It is said to be the only training film of its kind in existence.



SHIPPERS' PACKAGING GUIDE

Case histories covering the experiences of shippers of washing machines, water heaters, refrigerators, space heaters, gasoline pumps, television, etc., are contained in this booklet which is available as a guide for shippers of home appliances and other valuable finished products.

The booklet explains some of the principles of container design, as well as the case histories of some shippers who have successfully curtailed loss and damage to their finished products.

Source for further information on material mentioned here may be obtained by writing to Dana Chase Publications.

for greater PROTECTION *in* TRANSIT

Use DEVILCLAW BLOCKING ANGLES

SAVES TIME

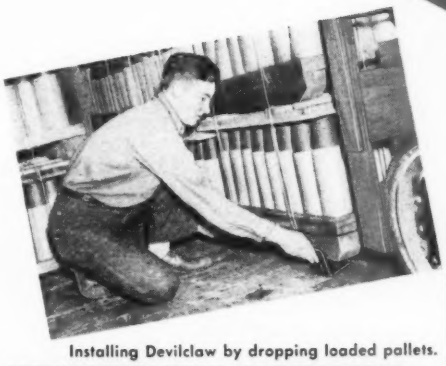
THOUSANDS IN USE

SAVES MATERIAL

SAVES LABOR

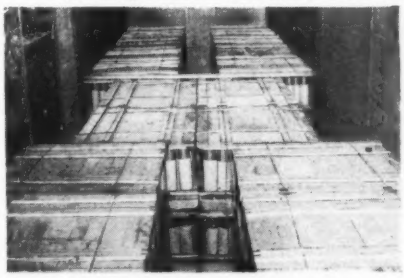
EASY TO INSTALL

EASY TO REMOVE

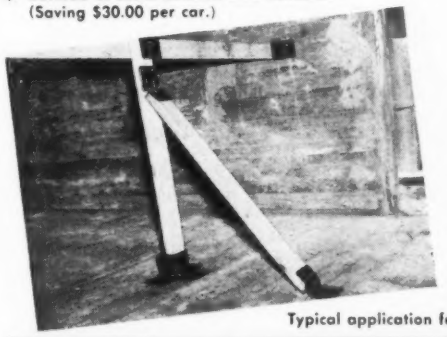


Installing Devilclaw by dropping loaded pallets.

* SAVED $30.00 PER R.R. CAR



* Carload of shells blocked with Devilclaw. (Saving $30.00 per car.)



Typical application for various Devilclaw patterns.

The No. 32 Devilclaw Blocking Angle gives DOUBLE holding power. Made of 11 gauge steel, it is designed so that prongs not only go into the floor, but hold the box or pallet as well.

Devilclaw Blocking Angles are available in a wide variety of patterns to meet your specific shipping needs. Your packaged products "stay put" when the load is protected with Devilclaw. Your crates or boxes are in *exactly* the same position at destination as when the car was stowed.

SUPERIOR PROTECTION . . . for Shippers, Carriers, Customers. Devilclaw Blocking Angles are the quick, modern method of securing crates, boxes, and pallets of any size or shape. They are inexpensive and easy to use — they speed up loading and unloading—and reduce carloading cost.

A letterhead request, referring to this advertisement, will bring samples to your plant for testing, and data on dollar savings.

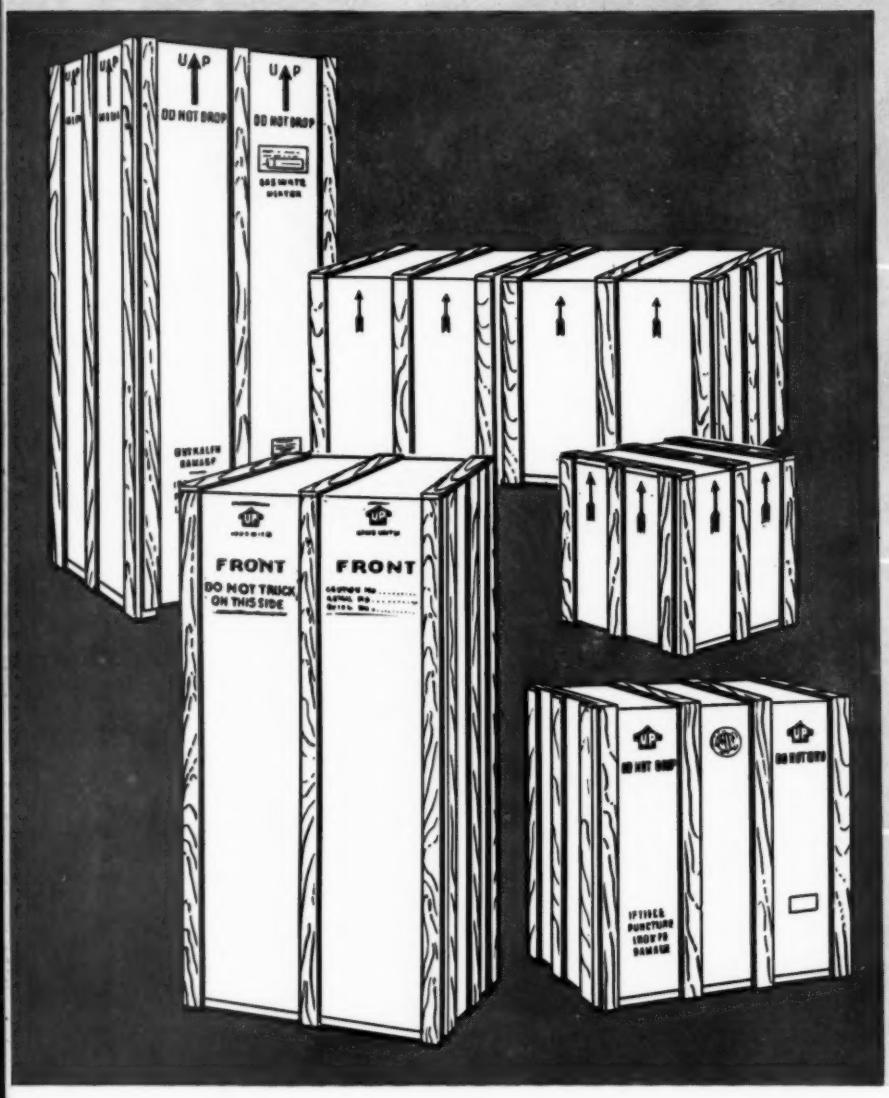
CAR BLOCKING, INC. MANUFACTURERS

1952 KIENLEIN AVE. ST. LOUIS 20, MO.

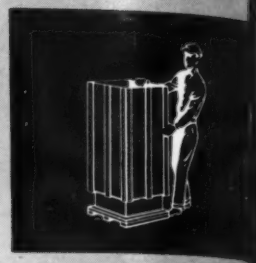
BLOCKING DEVILCLAW ANGLES

Ship safely in WATKINS cleated corrugated containers

WATKINS GIVES GREATER STACKING STRENGTH

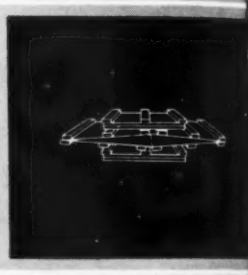


ASSEMBLY is speeded up with this easy-to-handle container. The assembly crews are all for packing the Watkins Way.

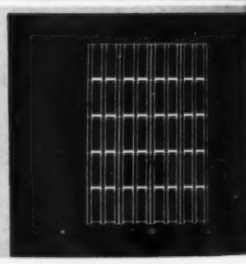


HANDLING shocks in the factory, in transit, and during delivery are resisted by the wood cleats, glued tube mat construction.

STORING problems are reduced to a minimum because of the 3-section design which provides for flat, close nesting.



STACKING is easy and safe, due to the supporting strength (minimum 4 tons on most containers) that is *engineered* into the Watkins design.



SAFETY, CLEANLINESS, LOW COST

For home appliances, for *all* types of finished products, the Watkins Container is your best insurance for safe delivery. Safety is ENGINEERED into every Watkins Container.

Cleanliness is another important point for manufacturer and for distributor, dealer and final customer. Watkins protects the fine finishes of your products and keeps out dust and dirt.

When you consider, too, that Watkins Containers are delivered 75% assembled and are designed to save you labor, time and money, the sum of all of these advantages should lead you to a Watkins manufacturer now.

The WATKINS CONTAINER · Manufacturers

. . . use the "Traveling Billboard" feature for product advertising . . .

these companies build WATKINS CONTAINERS

Cornell Paperboard Products Co. . . . . 1514 E. Thomas Ave., Milwaukee,
Cozier Container Corp. . . . . . 446 East 131st Street, Cleveland,
Crate-Rite Mfg. Corp., Division of Pacific Ports Ind. Inc. . . . . . 10901 Russett Street, Oakland, Calif
Dura-Crates, Inc. . . . . . 940 East Michigan Street, Indianapolis,
General Box Co. . . . . . 1825 Miner St., Des Plaines, Illinois, 16th and Maple Sts., Louisville,
Hemb & Martin Mfg. Co. . . . . . Watseka,
Illinois Box & Crate Co. . . . . . 811 Center Street, Plainfield,
Kieckhefer Box & Lumber Co. . . . . 1715 West Canal Street, Milwaukee,
Lane Container Corp. . . . . . 10212 Denton Road, Dallas,
Lewisburg Container Co. . . . . . 243 Singer Street, Lewisburg,
Livingston Wood Manufacturing, Ltd. . . . . . Tillsonburg, Ontario,
Love Mfg., Inc. . . . . . 608 South Commerce Street, Wichita,
Utility Crate Corporation . . . . 1985 E. 16th Street, Los Angeles 21,

—an inquiry to any of these companies will get prompt attention

ORLEY PLANT ADDITION

Orley Corporation, Detroit, is reported to have completed another addition to their plant, the third addition in as many years. The company, organized less than four years ago, has been unable to meet the demand for its commercial and domestic freezers, according to George Orley, president.

GP&F DESIGN SALES ENGINEER

The newly-created position of design sales engineer for Geuder,

Paeschke & Frey Co., Milwaukee, will be filled by Gilbert C. Gettelman, according to Frank T. Frey, executive vice president.

Gettelman has been associated with Milwaukee Industrial Designers for 11 years. His work will be closely connected with GP&F's new material division, which handles the design and development of new products.

FERRO PROMOTES PELZ

The appointment of Robert W. Pelz as assistant to the director of research of Ferro Corporation, Cleveland, was announced by O. O. Kenworthy, director of research. Long active in Ferro ceramic research projects, Pelz has lectured extensively before colleges and other groups on "The Story of Porcelain Enamel", a demonstration-talk originated by Dr. M. J. Bahnsen.

SUB-ZERO BUILDING NEW PLANT

Sub-Zero Freezer Co., Inc., Madison, Wis., is planning to build a new plant which will more than double their production, according to a report. It was indicated that when the plant is in operation, the entire line of Sub-Zero freezers will be redesigned.

ENAMELING INDUSTRY MEETING IN LOS ANGELES, MARCH 19-20

Los Angeles will be the focal point for the porcelain enameling industry on March 19 and 20 when members of the Porcelain Enamel Institute's executive committee and other industry leaders will meet with West Coast company representatives. Headquarters for the meeting will be at the new Hotel Statler.

It is expected that the following members of the PEI staff will be in attendance: W. A. Barrows, of Barrows Porcelain Enamel Co., Cincinnati, PEI president; R. A. Dadisman, of Armco Steel Corp., past president; Edward Mackasek, managing director; and John Oliver, secretary.

Your customers saw Godfrey and Tony Marvin *bake ice cream in an oven!*

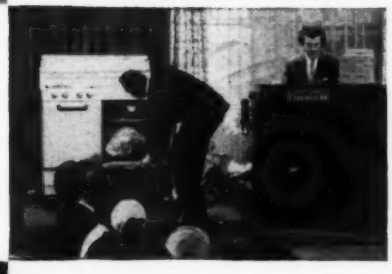
on the Fiberglas TV-Radio show, "ARTHUR GODFREY TIME"

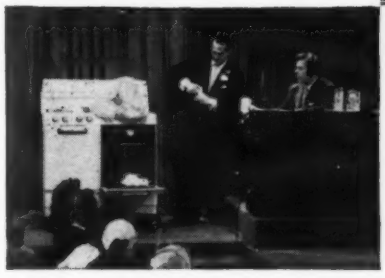
GODFREY:
"Tony, wrap up that ice cream in the Fiberglas* Insulation, and put it in the oven while the pie is baking."

MARVIN:
"O. K., Arthur. Here it goes into a 425° oven. We'll leave it in there for thirty minutes."

30 MINUTES LATER

GODFREY:
"Now that we've baked it for half an hour, let's show all these girls what's happened to it."





GODFREY:
"How do you like that! Still hard. You see how the Fiberglas Insulation keeps heat where heat belongs and cold where cold belongs. That's why leading manufacturers use it in ranges, refrigerators, water heaters and freezers. Ask your appliance dealer about it."

Now, more than ever,
A swell feature to have...
A swell feature to sell...

OWENS-CORNING FIBERGLAS CORPORATION
Dept. 109C, Toledo 1, Ohio

FIBERGLAS INSULATION MADE BY OWENS-CORNING FIBERGLAS CORPORATION · TOLEDO 1, OHIO
FIBERGLAS insulated

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.

SERVEL'S "SHOW OF STARS" OPENS ON BROADWAY

More than 2600 home appliance dealers from New York, Connecticut and New Jersey attended the premiere of the Servel, Inc., "1953 Show of Stars", a million-dollar musical production which is showcasing the company's new products.

The musical extravaganza that has a regular plot, original lyrics and a cast of 50 singers, dancers, actors and other personnel, opened in New York January 21, with a simultaneous opening in Boston. The two road companies are now on a tour which will take them to 30 cities coast to coast to present Servel's 1953 appliance line.

CASE INSTITUTE INDUSTRIAL FINISHES SYMPOSIUM

The second short course in the fundamentals of "*Paint as an Engineering Material*" will be held at the Case Institute of Technology, Cleveland, Ohio, March 30 through April 1.

Topics to be covered include: (1) Metal protection in severely corrosive environments; (2) Special problems of paint application such as factors which influence the adhesion of organic coatings, and causes and remedies of other paint application faults; (3) Testing of organic coatings, including design and interpretation of experiments for field or service testing, and accelerated laboratory tests for prediction of service properties of coatings.

W. VERNON BRUMBAUGH DIES

W. Vernon Brumbaugh, 57, executive secretary of the Refrigeration Equipment Manufacturers Association, died in Bethesda, Maryland, February 14.

He was a veteran in the trade association field, having served for the past 25 years representing manufacturers and distributors through national associations, including the National Lime Association, The Waxed Paper Institute, Inc., and the American Washer and Ironer Manufacturers Association.

Illustration shows cab doors for Autocar trucks being cleaned, phosphate coated, and dried.

This METALWASH phosphate coating machine provides an ideal surface for a lasting paint finish on truck chassis and sheet metal parts.

Cleaning and phosphating are uniform since the cycle is automatically controlled. Continuous operation, built around the conveyor line, eliminates material handling problems.

Write for illustrated catalog

Metalwash skill and experience is your assurance of lasting performance

METALWASH MACHINERY CORPORATION
919 North Avenue, Elizabeth 4, N. J.
Representatives in principal cities

GERALD STEDMAN DIES

Gerald Eldridge Stedman, 56, publisher of Private Executive Report, died Janpary 21 in Milwaukee.

Stedman was widely known in advertising and business writing fields, and was a contributor to *finish* during the war years. Throughout his career, he was extremely active in sales and merchandising writing, particularly in the appliance fields. During World War II years, he expanded his writing activities, becoming the most widely travelled industrial writer in the country.

Four years ago, he founded his own newsletter service to the public utility industry, Private Executive Report, which now appears twice monthly.

U. OF I. NAMES MC TAGGART TO AIR FORCES PROJECT

The appointment of G. Don McTaggart as research assistant in ceramic engineering, University of Illinois, has been announced. He is

associated with the Air Forces Research Project.

NORMAN RAMLER DIES

Norman Ramler, 47, partner in the firm of Ramler & Robinson, Toledo, Ohio, died January 29. He was well known throughout the home appliance industry.

TOOL ENGINEERS TO MEET IN DETROIT, MARCH 18-20

The tentative program of technical sessions at the annual meeting of the American Society of Tool Engineers includes the following:

March 18 — "Production Uses of Adhesive-Bonded Joints", "Principles of Automatic Sorting and Feeding", "Stress Considerations in Contour Forming", "Problems in Production Welding" and "Tool Engineering in Europe."

March 19 — "Dies for Forging High Temperature Alloys", "Engineering Procedure in Product Designing", "Selecting Machine Tools for Maximum Efficiency", "Evaluation of Spinning vs. Drawing and Forming", "Use of Wax-Base Products in Metal Forming and Machining", "Structure as an Index to Machinability", "Precision Production Balancing", "Problems in Thread Production","Automatic Manufacturing" and "Changing Trends in Threaded Fastenings."

March 20 — "Tool Engineering Applications of Titanium Carbide Alloys", "Developments in Electrolytic Grinding", "Equipment and Tooling for Contour Forming", "Correlation of Metallurgy with Engineering Design", "Advances in Precision Boring", "Maintenance Expense Control of Production Tools", "Manufacturing Applications for Metal Stitching" and "Honing, Lapping and Superfinishing."

WESTINGHOUSE "DEFENSE" PLANT SWITCHES TO CIVILIAN GOODS

The Navy Department and Westinghouse Electric Corp., jointly announced a change in production plans for the company's new plant now under construction in Columbus, Ohio. Recent changes in jet engine requirements will permit the entire plant, scheduled for completion by August 1, to go into production on civilian goods.

Electronics . . . . .

→ *from Page 31*

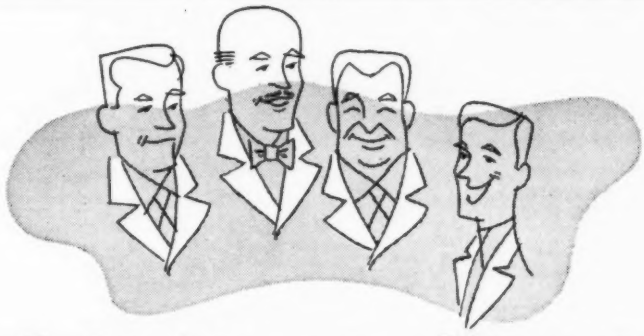
nation of mechanically automotive spray machines, as the spray guns work from fixed mounts.

3. More accurate control of thickness by eliminating most of the hand spraying, and coincidentally minimizing chippage from excessive build-up at the corners.

4. The lower atomizing pressures used (20 pounds per square inch) appear to enhance the texture and reduce the objectionable back blast which occurs when spraying into closed shapes or parts, the design of which tend to baffle the air flow.

The electrostatic spray method, despite early unsatisfactory performances, has steadily improved to a point where many feel it is now economically successful. However, extended application in the field will be required to accurately determine the degree of success and the versatility of this radically new method.

A list of persons participating in the spraying demonstrations is shown on following page. →



All chemists wear white coats!

Unlikely and unimportant but even if they look alike there's an important difference between them. KLEM chemists have dealt with almost every conceivable problem in their field. Their extensive experience enables them to more readily comprehend plant situations than ordinary chemists. The KLEM laboratory, equipped with the finest technological equipment for duplicating exact plant conditions and procedures, enables them to determine the correct answer to tough problems.

Let us help eliminate your bottlenecks, assist you as we have others in establishing profitable production schedules.

Representatives in most industrial areas.

KLEM PRODUCT of the MONTH

MINIT KOTE

Cleans, neutralizes, phosphatizes in 60 seconds. Frees metal surfaces from all traces of oil and dirt. Deposits light, uniform, phosphate coating for better adhesion of paint to ferrous metals and aluminum. Write for details.

3 OF 20 STANDARD KLEM PRODUCTS

KLEM STRIPPER No. 73— Heavy duty hot stripper for paint and enamels, rinses easily, eliminates hand scrubbing.

WATER WASH COMPOUND No. 203—Stops corrosion, keeps lines clean, prevents adhesion of paint to water curtain. Excellent for recovery.

RUST-SOL No. 124—Concentrated phosphoric acid surface conditioner. Removes oil and rust. Provides slight etch to promote adhesion of paint. Meets USA 3-213, TAC-ES431 and MIL-C-10578.

KLEM Chemicals Inc.
14401 LANSON . . . DEARBORN, MICHIGAN

Participants in Electrostatic Spraying Demonstrations

Binks Manufacturing Co.
R. Beck

Century Vitreous Enamel Co.
Roger Fellows
F. W. Rozene

Chicago Vitreous Enamel Product Co.
J. L. McLaughlin

The De Vilbiss Company
Marcel Pouilly

Frigidaire Division, GMC
John S. McDonald
R. S. Sheldon
John B. Vernetti

General Electric Co.
J. A. Schiefferle

Globe American Corp.
Arol Hall

The O. Hommel Company
G. Holzberger

Hotpoint Company
George Aneloski
G. E. Terry

Ingram-Richardson, Inc.
Burdett Boggs
Clark Hutchison

Inland Steel Company
M. B. Gibbs

International Harvester Co.
J. J. Baker

Porcelain Enamel Institute
Edw. Mackasek

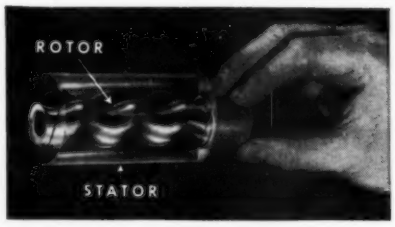
Geo. D. Roper Corp.
R. P. McCook
F. T. Sieren

Rutenber Electric Co.
R. S. Goldthwaite

Vitreous Steel Products Co.
Harold C. Wilson

Magic Chef, Inc.
(Supplied Parts)

HOW IT WORKS shows why the MOYNO has all these Advantages:



Rotor and Stator Form the Progressing Cavities

Rotor might be described as a stretched-out corkscrew. The stator is like it but has a *double* internal thread. As shown in the illustration, the rotor and stator thus form closely fitted cavities. As the rotor revolves, the material constantly moves or progresses within these cavities toward the discharge end.

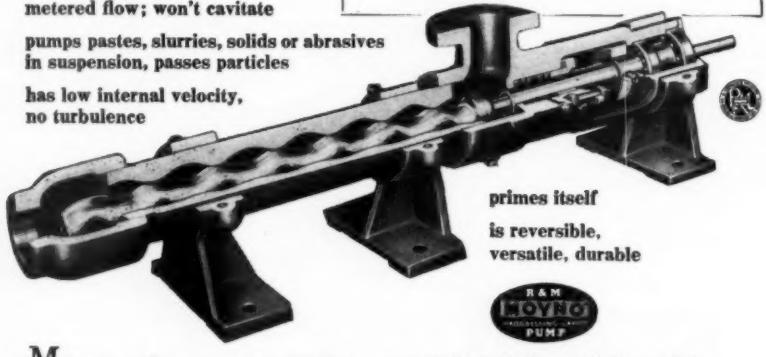
Thus material is moved quietly and steadily, with a minimum of turbulence. And because of these cavities, the material may be a paste; it may contain solids in suspension; abrasive slurries are no problem.

pumps practically anything

gives continuous positive metered flow; won't cavitate

pumps pastes, slurries, solids or abrasives in suspension, passes particles

has low internal velocity, no turbulence



primes itself

is reversible, versatile, durable

R&M MOYNO PUMP

Moynos solve many pumping problems. They will handle acids and alkalis, hot or cold materials, liquefied gases. They'll handle practically anything you can think of as pumpable, and handle difficult jobs better than any pump we know.

Moynos are available in a wide variety of types and sizes and materials, with displacements up to 250 gallons per minute, pressures up to 1000 p.s.i. And you'll be amazed at their small sizes, their high efficiency, their long, trouble-free operation.

Get this free bulletin No. 308

Details, specifications, and a more complete explanation of how Moyno pumps work and what they can handle. Call the nearest R&M Moyno man, or write Robbins & Myers for a copy.

ROBBINS & MYERS, INC.

SPRINGFIELD 99, OHIO • BRANTFORD, ONT.

Magnetic inspection . . .

→ *from Page 37*

First, "Are we interested in locating deep sub-surface or only surface defects?" The answer to this question determines the type of magnetizing current that must be used, the color and medium of the magnetic particles, and other variables.

When it is necessary to locate deep sub-surface defects, either straight D.C. or full-wave or half-wave rectified A.C. current should be used. When only surface defects are of interest, straight alternating current is preferable. The use of A.C. will eliminate sub-surface indications, thereby making it easier to inspect for surface cracks and flaws.

The next question the inspector asks himself is: "In what areas of the part are the defects we are looking for likely to appear?" The answer to this question can result in substantial cost savings. It is not always necessary to give 100 per cent inspection to every part. Inspect only those areas where a defect may prove harmful to the part. Areas of abrupt change of cross section, highly stressed areas, welds, etc., fall under this category. Defects in other areas, unless they are so large they affect appearance, may be entirely harmless. If a part will be accepted regardless of defects in certain areas, it is a waste of money to inspect those areas.

"In what direction must harmful defect lie?" This answer to this question also will eliminate needless rejections. If a part is stressed in tension, it is quite obvious that a small crack running parallel to the direction of the applied force will be of little concern. But a crack running at an abrupt angle to the applied force is dangerous.

It is a characteristic of the magnetic particle inspection process that any defect running at an angle to the lines of induced magnetic force will produce the clearest indications. Therefore, when the direction in which a defect lies is of importance, what is called "bi-polar" magnetism is often used. This means simply that the part is magnetized in one di-

rection, the magnetic powder applied, then it is magnetized at about 90° angle to the first magnetization and the powders applied a second time. Following this technique, there is enough residual bi-polar magnetism in most parts to produce sharp indications of defects running in any direction.

Next, the inspector must decide the color of magnetic powder to use, and how these powders will be employed. Magnetic powders are available in grey, black and red colors, and the choice will depend upon the background color of the part. But magnetic particles in powder form are less sensitive than when in suspension, and are employed generally for the inspection of parts with relatively rough surfaces and for surface defects only.

In the liquid method of magnetic particle inspection, the magnetic particles, in paste form, are available in red, black, or fluorescent colors. This paste is then added to a bath of light distillate oil and "washed" or "hosed" over the part after it has been magnetized. The bath may be used over and over again, and will reveal very small surface defects as well as sub-surface defects when the magnetizing current is adjusted accordingly.

The liquid method is used in the fluorescent-black light process, with a difference in that the magnetic particles are coated with the fluorescent material so that they will respond and glow when exposed to the ultraviolet rays.

Experimentation determines proper technique

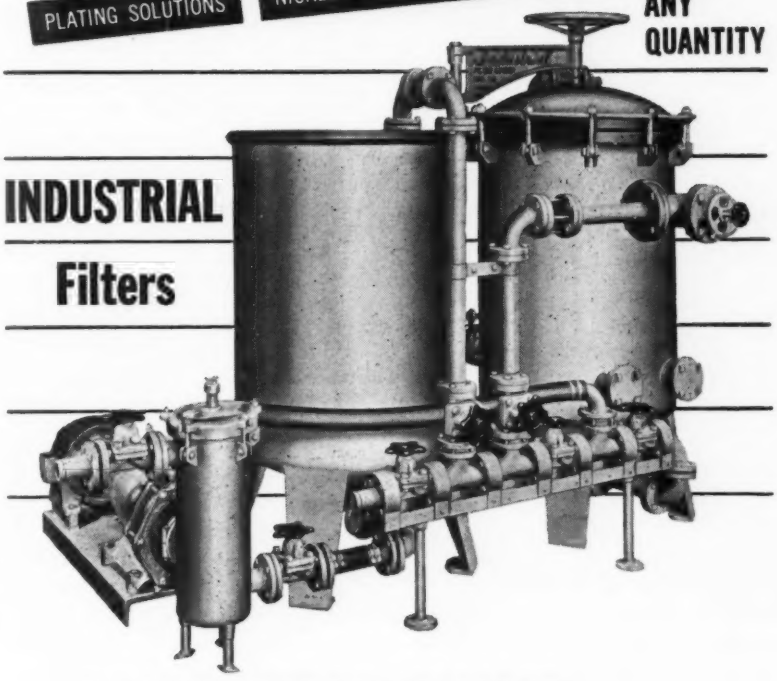
The inspector must determine also whether to use continuous or residual magnetism, and the amount of current necessary to produce the required magnetic force. In many cases, this information must be gathered by actual experimentation with the part involved. In continuous magnetization, the magnetic particles are applied to the part while the magnetizing current is flowing; in the residual method, the part is first magnetized, the current shut off, then the magnetic particles are applied. When the

CLARIFICATION of

PLATING SOLUTIONS · NICKEL DIP SOLUTIONS · NEUTRALIZER SOLUTIONS

ANY QUANTITY

INDUSTRIAL Filters



BONUS PERFORMANCE
with lasting reliability

The engineering and construction features of INDUSTRIAL filters add up to maximum clear filtrate with less floor space, greater operating conveniences, and less maintenance delays and expense. The general design permits the use of the materials best suited to the solution requirements. Vertical filter leaves with ample flow space on both sides offer maximum filtration area. Outside lockup simplifies the installation of filter leaf and bag assemblies. An exclusive air-wash cleaning method practically eliminates the usual labor and inconvenience of dismantling the filter after every cycle. INDUSTRIAL filters are often in operation for months without removing the cover — cutting downtime to a minimum. All these features have been proved in long-life service — your assurance of dependable bonus performance.

Full particulars and recommendations on any filtration job will be given upon request.

4381

INDUSTRIAL
FILTER & PUMP MFG. CO.
5906 Ogden Avenue, Chicago 50, Illinois

PRESSURE FILTERS
DEMINERALIZERS
RUBBER LININGS
CORROSION TEST CABINETS
HEAT EXCHANGERS

magnetic retentivity of the material is great enough, the later method is preferrable, but when retentivity is lacking, the continuous method must be used. When it is necessary to detect deep sub-surface flaws, the continuous method is recommended due to increased sensitivity.

The magnitude of magnetizing current is also a problem dependent upon the types of defects that must be detected and their location relative to the surface of the part. Here again experimentation is the most reliable method to arrive at definite results. Magnetizing current may vary all the way from 1000 amperes per inch of diameter of the part down to a point where only major surface defects will produce an indication. The higher the current, the more sensitive the process becomes, but this sensitivity need never exceed the quality requirements of the part being inspected.

Our second major factor to consider in developing an efficient inspection standard is: "Where in the course of manufacture should a part be inspected?" Here again a number of variables enter the picture. If, for instance, a piece of bar stock is to be cut up then machined into gears, it is quite obvious that magnetic particle inspection of the bar in the "as received" form will save a lot of lost machine work and time if the bar is found to contain major defects. If the gears were inspected only after completion, this same defect might extend through several or all of them, making rejection necessary.

Certain manufacturing processes, such as heat treatment or welding, may cause defects to appear. If a lot of work must be accomplished on a part after it has passed through one of these processes, it will probably prove cheaper to inspect just after the process has taken place.

In some cases, however, the magnetic particle inspection equipment is located near the end of the production line, and parts are inspected just prior to installation on the assembly line. To date, the most progressive companies have utilized fully the aspects of magnetic particle inspection that will save lost machine work and lost time on defective materials. This is a virgin field for developing substantial cost-saving practices.

Our third major consideration was: "How can magnetic particle inspection techniques be employed to reduce costs?"

It is obvious that the development of a dependable inspection standard that assures the necessary quality but minimizes rejections for harmless defects is the first logical step in this direction. The practice of "in process" inspection to save subsequent machine work and manhours on faulty parts is another step.

One of the most costly factors involved in magnetic particle inspection is handling of parts. In the conventional machine, the operator or inspector must load the machine, apply the magnetizing current, apply the magnetic particles, remove the part from the machine, inspect it, then place it with the appropriate outgoing group.

This handling problem has been vastly simplified in some instances by "tieing in" the magnetic particle inspection process with the production line. The fluorescent-black light process is generally employed with such set ups, and many of the operations are semi-automatic. The last man to handle the part on the production line places it on a conveyor which transports it to the magnetizing terminals. Here the part is automatically magnetized, then passed on into a "tent" or darkroom where the inspector scans it carefully for fault indications, and ejects the part either into a "good" or "salvage" chute depending upon its condition. Of course, such set ups can be profitably employed only when similar parts are being produced in great numbers.

In brief summary it can be reiterated that by far the greatest overall value to accrue from dependable and efficient magnetic particle inspection is consistent high quality products. Herein lies any firm's reputation and future. A million-dollar advertising campaign will do little to affect the attitude of a disgruntled customer, while an extra dollar spent in inspecting the part that caused his dissatisfaction would have avoided the situation entirely.

PACKAGING SPECIALISTS TOUR KIMBERLY-CLARK PLANT

A group of purchasing and packaging specialists from Chicago area manufacturing firms made a trip through Kimberly-Clark Corp. facilities at Neenah, Wis., on February 6.

The group toured Kimberly-Clark mills where Kimpak interior packaging and other industrial wadding products are made, and visited the firm's research and development lab.

The group included men from All-Steel Equipment Co., Aurora; G. D. Searle & Co., Skokie; Howell Company, St. Charles; and United Felt Corp., Zenith Radio Corp., Armour & Co., Bell & Howell Co., and Abana Products Co., all of Chicago.

Detrex top officers— *Robert A. Emmett, former president and now chairman of the board, is shown (left) admiring a watch given him upon completion of 30 years of service with the company. A. O. Thalacker, right, new president of Detrex Corporation, made the presentation to Emmett.*

G-E PRODUCING CLOTHES DRYERS AT NEW APPLIANCE PARK

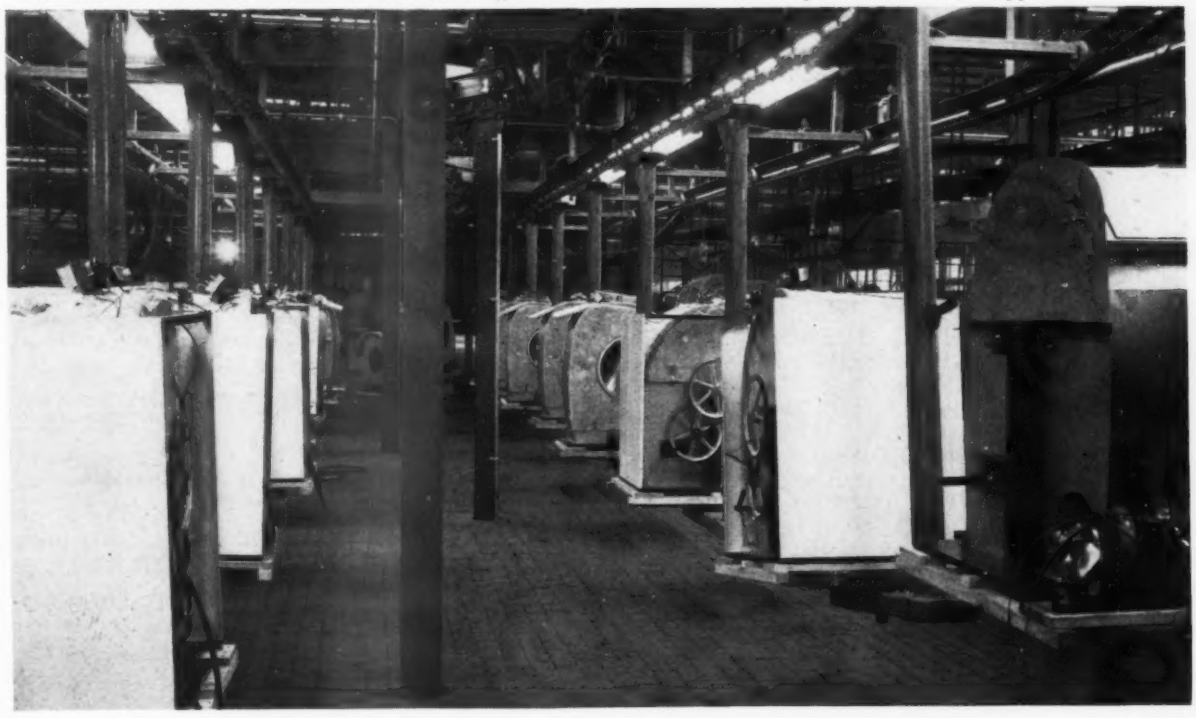
Automatic clothes dryers are now rolling off the assembly line in Building #1 at Appliance Park, new manufacturing center under construction at Louisville, Ky., for General Electric Co.

The dryers are the second appliance to be produced at the new plant. Assembly of dishwasher was begun last October on a temporary assembly line in the same building. The dishwasher operation will be moved to Building #3, as soon as facilities become available there.

James H. Goss, general manager of home laundry equipment department, said the dryer assembly line features the use of an overhead monorail conveyor system where flat conveyors normally are used.

Goss said that complete flexibility for assembly operations is achieved by the use of the overhead system. Appliances may be rotated through 360 degrees, and may be raised or lowered to provide the most practical working height for any specific operation. The overhead system, he said, also gives greater latitude for work operations on both sides of the assembly line.

Automatic clothes dryers— *moving along an overhead monorail conveyor line at G-E's Appliance Park.*



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SALES & CUSTOMER SERVICE

Bob Weston — 6 East 39th St., New York 16, N.Y.

360 N. MICHIGAN AVE., CHICAGO 1, ILL.

"I saw your ad in finish"

G-E OPENS SHOW ROOM IN THE MERCHANDISE MART

Working displays, designed to help retailers merchandise appliances, are a feature of General Electric Company's major appliance division's new year-round showroom in The Merchandise Mart, Chicago.

Opened in January, the showroom occupies about 3500 square feet of space on the 11th floor of the Mart. An adjacent 1500 square feet provides offices for the central regional manager, and a complement of field personnel.

John F. McBride, division manager of marketing, said "retail business is discovering more and more that displays which help explain product features to customers also help sales.

"The new G-E self-selling displays exhibited in the showroom direct the customer's attention to the appliances, point up their features, high-spot special models, and prompt the customer to sell himself," he stated.

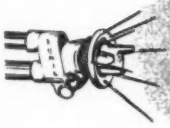
THOR ENTERS ELECTRIC RANGE FIELD WITH LEESON STEEL PURCHASE

Thor Corporation, Chicago, has acquired Leeson Steel Products Co., New Albany, Indiana, it was announced by John R. Hurley, president.

The newly-acquired company, which manufactured Presteline electric ranges, will continue operation as a wholly-owned subsidiary of Thor.

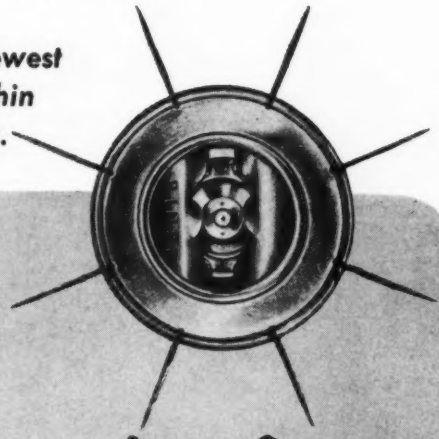
Hurley will become president of the subsidiary, in addition to his present position with Thor. Other officers include Donald Sutherland and Fred Rexford, vice presidents; Victor F. Melin, secretary-treasurer; and A. M. Krause, assistant secretary-treasurer.

The "wall" range previously produced by Leeson has been restyled by Joseph Mango, industrial designer, and will shortly be manufactured under the Thor name. The wall range is designed so that the range oven can be installed in the kitchen wall or in any standard kitchen cabinet, with the cooking unit placed elsewhere in the kitchen.



SPEED UP YOUR PRODUCTION WITH IONIZED PAINT!

Better Coverage—Faster—Uses Less Paint. Newest Scientific Electric Development Pays For Itself Within 90 Days In Most Cases Through Paint Savings.



Ionic Gun*

Replaces electrically charged screen which was only efficient on flat or smooth surfaces, — completely coats curved, inner surfaces of 55 gallon steel drums with removable covers.

Electrically charged particles of paint are actually attracted to the article to be painted when using IONIC HIGH POTENTIAL PAINT SPRAYING EQUIPMENT introduced by Scientific Electric. The item to be painted — being grounded (at ground potential) — is part of the electric circuit. There is an electrical attraction between the part to be painted and the ionized paint.

Paint is so highly ionized with the IONIC GUN that it produces an even finish and penetrates into all irregular surfaces.

Scientific Electric's IONIC GUN features several adaptors, each for a given application, all above ground. Installation is simplified with this method and most of the mystery of installing and operating such equipment is removed.

Visit our plant for a demonstration of the IONIC GUN and IONIC HIGH POTENTIAL PAINT SPRAYING EQUIPMENT and witness the use of this process on your product with your materials or . . . write now for a free color booklet.

NO RENTALS
NO ROYALTIES
NO SKILLED LABOR
SPEEDS UP PRODUCTION
MINIMUM REJECTS
HIGHER PRODUCT QUALITY
LOWER CAPITAL INVESTMENT
2% MAXIMUM LOSS FROM OVERSPRAY!

HIGH POTENTIAL PAINT — IONIC — SPRAYING EQUIPMENT

*Pats. applied for

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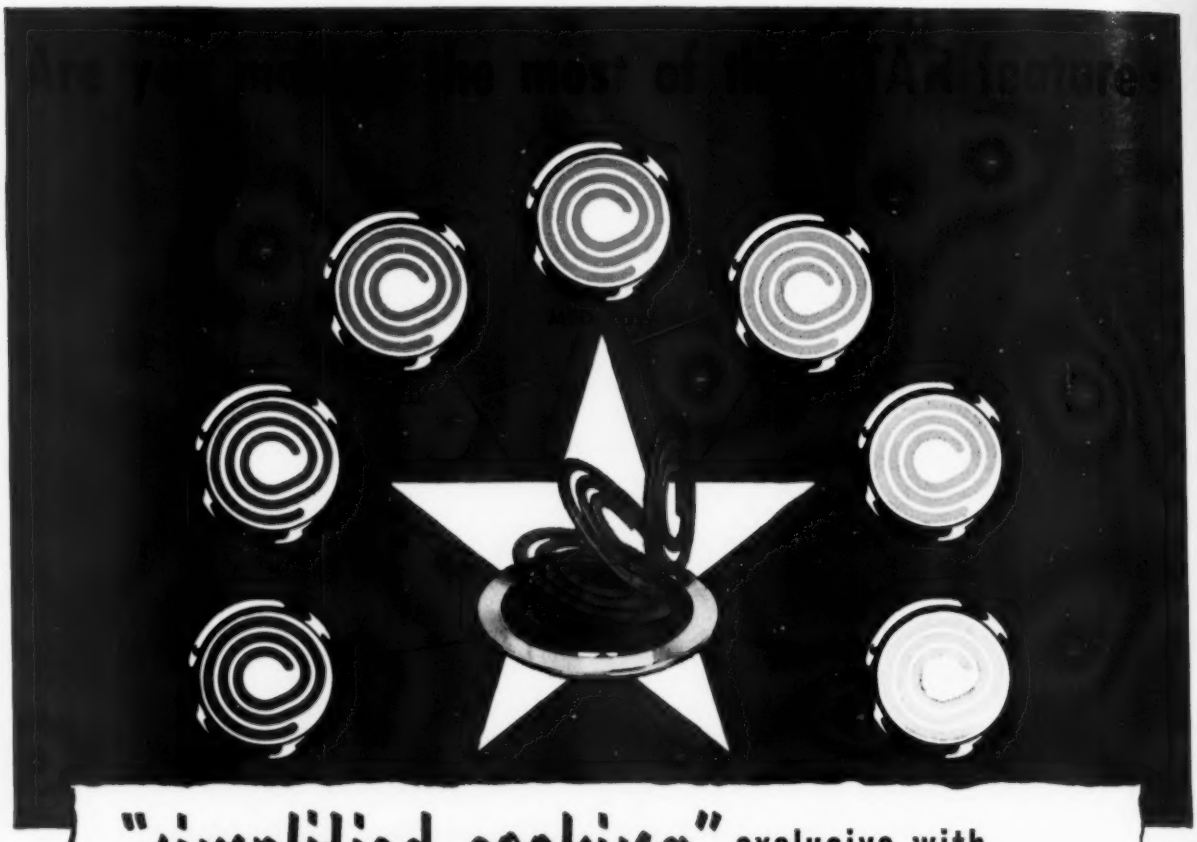
DESIGNERS and MANUFACTURERS of HIGH FREQUENCY and HIGH VOLTAGE EQUIPMENT SINCE 1921



"simplified cooking" exclusive with TK Monotubes

When competition is keen, as indications point to this year, emphasizing a star feature can bring extra sales. And, the additional volume can make a big difference in your profits. You'll find TK *Monotubes** just such a feature. *Monotubes* provide *"simplified cooking"*—the range-top feature women will understand and appreciate—an advantage *you* can use in building bigger, more profitable sales this year.

HERE'S WHY! *Monotubes* are single-coil surface units. Heat distribution is even *all across* the bottom of the utensil at *every* cooking speed . . . an exclusive *Monotube* advantage. Foods cook evenly with little or no special attention.

FAST, ECONOMICAL COOKING! The broad, flat coil of *Monotubes* provides up to 32.8% greater heating surface in direct contact with the utensil. Foods heat faster, cook faster, even at lower heats . . . for real cooking economy.

EASY CLEANING! The exclusive, "swing-away" action permits the coil to "stand alone" for quick, convenient cleaning. Range top and drip pans can be kept sparkling bright and new looking easily.

Remember . . . the star feature that women buy is cooking performance *not* just heating elements. You can offer top performance for surface cooking where 80% of the food preparation is done when you include TK *Monotube* surface units. So, why not hitch up to the *"simplified cooking"* story with the ranges you make and sell? It's a sales clincher that can mean profitable selling for you this year . . . a feature that merits your investigation.

*Trademark Reg. U. S. Pat. Off.

TK FERRO

TUTTLE and KIFT, INC.